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September 30th, 1948
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Washington Highlights

Walter S. Hallanan, chairman of the National Petroleum Council, has announced the appointment of 22 representatives of the petroleum industry in the West Coast area to membership on the council's regional advisory committee for district five.

A. C. Stewart, Union Oil of California, has been designated chairman. E. J. McClanahan, Standard of California, has been named vice chairman. In addition, membership of the committee is as follows: P. E. Allan, Tide Water Associated, Rush M. Blodget, Oil Producers Agency, Richard Fenton, California Stripper Well Association, J. W. Hancock, Hancock Oil, C. A. Johnson, Independent Refiners Association, Charles S. Jones, Richfield Oil, J. G. Jordan, Shell Oil, W. G. Krieger, Douglas Oil, M. A. Machris, Bandini Petroleum, William C. McDuffie, Mohawk Petroleum, Harry S. Rothschild, Rothschild Oil, J. C. Sample, General Petroleum, Robert Harris, Champion Oil, Gilbert D. Moyle, Inland Empire Refineries, S. Fletcher, Fletcher Oil, C. S. Wharton, Texas Co., Cecil True, True's Oil, Earl McKales, McKales, Inc., and Stewart Hynes, San Francisco Garage Owners Association.

Federal Communications Commission has given official approval to the application of Humble Oil & Refining Co. to fit three trucks with Philco radio units. The radio using trucks will seek determination of azimuth and ranges from known markings in geological location work in conjunction with a helicopter equipped with radar reflector.

Federal Power Commission has under consideration an application of Southern Counties Gas and Southern California Gas and El Paso Natural Gas to increase the capacity of the Texas-California pipeline by 180 million cubic ft. of gas daily.

Pacific Gas & Electric Co. disclosed here financing plans to sell $75,000,000 of first and refunding mortgage bonds series R, due June 1, 1982, in a registration filed with the Security Exchange Commission. The company will use the proceeds to retire $12,000,000 in bank loans and to pay for part of its construction program.

Washington industry sources are confident enough oil supplies will be on hand this winter to satisfy all consumer needs, despite a prospective 7 per cent rise in demand. Oil requirements for the coming season are foreseen as some 450,000 barrels daily above last winter's level of 5,900,000 barrels a day. Production of crude oil and runs through refineries so far this year have been breaking all records.

American Trucking Association's committee on taxation is planning to recommend to Congress flat opposition to toll road construction and repeal of Federal automotive excise taxes. The committee also plans recommendations against any diversion of highway user tax revenues to purposes other than for highways.

Per capita use of petroleum is approximately 60 per cent higher than it was in the 1935-1939 period, according to the Commerce Department. The department analyzes the increase as largely springing from the increased use of Diesel-electric locomotives by American railroads and residential oil burners for domestic heating purposes.

The Petroleum and Natural Gas Branch of the U. S. Bureau of Mines next year probably will stress research on secondary recovery in stripper well fields throughout the country. Approximately three-fourths of the nation's 420,000 producing wells are in the stripper category. The Bureau in recent months has been intensifying its study of oil from shale in Colorado. Union Oil of California and a subsidiary company of Standard of California are cooperating with the Government in carrying these studies to a satisfactory conclusion. Experimental station is at Rifle, Colorado.

Production in the United States soared to a rate of $248 billion a year during the second quarter of 1948, the Commerce Department reported. This was a $4,000,000,000 increase over the January-March rate. The figure included all of the nation's production, including goods and services, farm and factory, in the final form purchased by the consumer.

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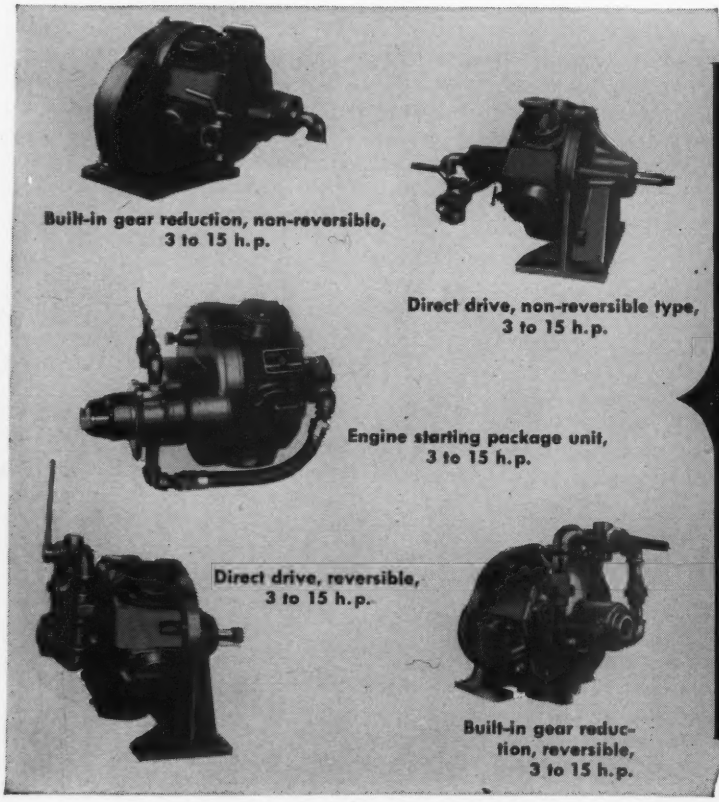

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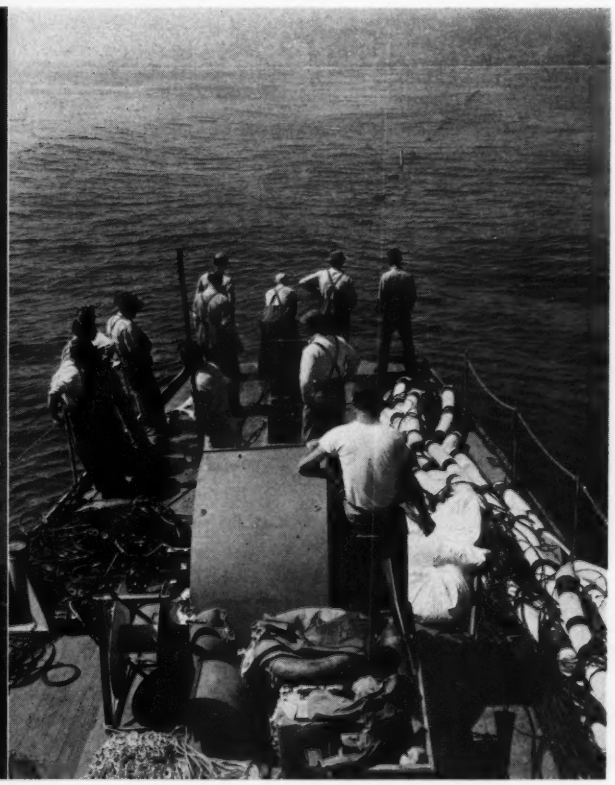
California Companies Join In Marine Exploration

If there is one phase of the oil business about which oil companies are more secretive than any other, it is unquestionably exploration. There is no reticence, of course, about discussing exploration methods openly and often. Academically, geology and all the related finding sciences are continuously under discussion at various group meetings and conventions. The mechanisms of techniques and instruments are laid bare for anyone who is interested to look, mark, and inwardly digest, and there is even a ready disposition to debate in public forum the geology of producing fields, and to construct or reconstruct the subsurface conditions from such data as may be available.

When, however, it comes to the exploration of territories that have not yet been exploited, or those that are just in the process of being exploited, geologists, geophysicists, paleontologists, and all their retinue are as silent as the tomb. There is very good reason for this attitude. Obviously, to give any inkling of a projected exploration program, or the results of one just concluded, immediately brings into the affected area a swarm of get-rich-quick folk, who grab up every bit of unattached territory, and besides bidding up the price of land to unreasonable proportions, just generally clutter up the whole enterprise to an unnecessary and uncomfortable degree.

All that being so, it is most interesting to find that through an unusual set of circumstances some thirteen oil companies banded together in an exploration program that is in itself of unusual character. For many years leading geologists have expressed the belief that for the location of new petroleum reserves the most promising unexplored areas were the coastal belts, designated as the continental shelves. Some entirely plausible and logical theories have been expounded to explain the possible accumulation of oil in these areas, and they are so generally accepted by scientists, that it is no wonder the oil operators have become interested in testing them. This is particularly understandable since the postwar period has seen an accelerating demand for petroleum quite seriously out of relation with the discovery rate. That, however, doesn't yet give the reason why thirteen companies are now engaged in a joint exploration of the lands lying under

This is what happens when the charge of Nitramon W.W., usually about 50 lbs., is detonated near the surface of the water. When the explosion takes place at considerable depths, no surface indications are visible.



The seismometer cable is unreeled from the stern of the recording ship. Geophones are attached to the cable at intervals of 100 feet for 1000 feet. The off end is held in position by the so-called tail boat.

the ocean off the California coast. It is an interesting story.

Originally, four companies—Shell Oil Co., Union Oil Co., Continental Oil Co., and The Texas Co. began geophysicising these off-shore lands separately and independently. But, as is well known, geophysical prospecting required that a junior earthquake be developed at intervals through the medium of an explosive charge. This naturally excited the alarm of the California Fish & Game Commission. It was feared that the discharge of numerous shots would play hob with the fish in the area of operation. Overtures were made then to the several companies involved to conserve the fish life of the coastal waters by combining their efforts and reducing the number of shots to a minimum. The oil industry is nothing if not cooperative and it readily agreed to this suggestion so that now we are about to witness the rather unusual spectacle of thirteen or more highly competitive organizations joined in an exploration program the results of which may eventually return them to an even more competitive scramble for production than that which prevailed before the joint exploration began.

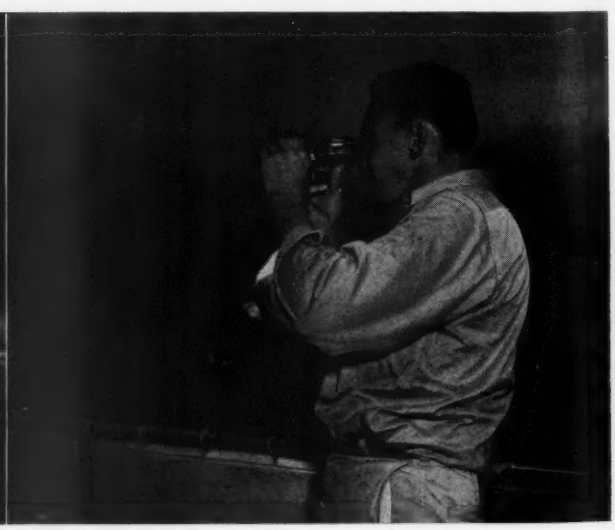
There are many interesting angles to a program of this kind. To begin with the use of the reflection seismograph in comparatively deep waters is a modern process that employs some very ingenious instruments and techniques. At first the entire idea presented formidable difficulties, but by dint of experimentation and a merging of interests between operators and manufacturers, most of the bugs were worked out of the system and a productive, workable process was evolved. It was originally felt that the cushioning effect of water simply precluded any possibility of developing a reliable method of reflection seismography. However, it was known that earthquake shocks are transmitted with great force through deep waters. Many ships far distant from the source of the shock waves have nevertheless felt them very distinctly, and the effect of shock waves from depth bombs is well known.

Because of these and other related facts there was no let up in the continuous effort to adapt the geophysical method of prospecting to the exploration of underseas lands, and the process as it is being used today off the coast of California is highly effective. The arrangement with the State Fish & Game Commission is that only one crew shall operate in a given area at any specific time. It is understood that the work now being carried on off Santa Barbara by United Geophysical Company, under the direction of Shell Oil Company, and in behalf of itself, Union Oil Company and Continental Oil Company, will be concluded on September 30, 1948, and beginning October 1, 1948, thirteen California companies will be jointly interested in the exploration of that section of the coast line lying north of Point Conception. There is no specific data being given out with respect to the results of the survey to date, but it is openly conceded that the work is proceeding in an eminently satisfactory manner, and that recordings are clearly defined and thoroughly reliable.

In the line of explosives, a compound developed by E. I. duPont de Nemours has done a great deal to eliminate the hazards usually incident to the handling of charges varying from 10 to 50 pounds, and at the same time to get a shot that produces the desired effect in the right direction. This is Nitramon W. W., which has the requisite power and yet is quite unaffected by most of the contingencies that cause accidental discharge. This compound can not be detonated by dropping, is immune to the impact of a rifle bullet, and can be stabbed with a red hot poker without going off. Aboard the shooting ship, the charges are stored in separate chambers from the primers and blasting caps, so that no premature burst is possible. As a final precaution, the shot is not assembled until everything else is in order and it is almost time to fire it.

It should be pointed out here that the exploration fleet consists ordi-

The exact location of the shot and the lines of seismic "jugs" is plotted by means of a three-arm protractor, from sextant observations made as near as possible to the precise instant of shooting.



The operator is here fixing the relationship between his ship and three or more shore markers by means of a sextant. The actual plotting of the location is later made with the three-arm protractor.

narily of about six boats. First is the survey boat which goes out considerably ahead of the others and marks off with a series of buoys the area to be tested. Then comes the recording boat, which is really the flagship of the fleet. On it are most of the geophysical crew and their supervisors, the recording equipment, and the geophones. From this ship, the geophone cables are paid out carefully, the off end being held in place by another ship, known as the tail boat. There is a craft especially equipped to place charges at greater depths, and prominent also in the lineup is a boat that skims hither and yon, bearing a representative of the State Fish & Game Commission, who casts a baleful eye at every dead fish that shows up after the explosion, and sees that it is gathered into the hold. It is interesting in this connection that the number of fish killed by the shots is practically negligible. It is reported that even the Fish & Game people are surprised—and probably pleased—at the extremely small toll. Also, just in passing, the few fish that do show up are sold and the proceeds of the transaction are devoted to charitable purposes.

It must not be assumed that the reflection seismograph was adapted to seagoing use by any simple process. Much thought and a great deal of experimentation has been devoted to making the usual system of seismic exploration applicable to sea beds. But, in any case, it appears that the right sort of equipment, a method of utilizing it to advantage, and sufficient experienced personnel, are now available here on the Pacific Coast to complete a survey that should be of great significance to the economic future of the west, perhaps to the world. If the results of this survey are not enough to justify an expensive marine drilling program, we had better get busy with an expanded program of synthetic fuel research. Incidentally, some important headway has already been made on the recovery of oil from extraneous sources, shale for example. As far back as the early 20's Union Oil Company was acquiring substantial shale deposits "just in case."

If the present geophysical examination of the sea beds off the California coast indicate that an exploitation program should be begun, the problem of developing adequate facilities and techniques for marine drilling will be tackled with a new intensity. We are not, of course, devoid of experience in this respect for off shore wells are no new thing in California. However, the drilling of a well immediately adjacent to the shore, where a pier can be extended from land for the operations is decidedly different from drilling one so far off shore that land projected piers are out of the question.

Most of the open water drilling with which we are familiar at the moment has been carried on in the Gulf of Mexico. Largely it makes use of more or less isolated piling platforms, on which is set up a veritable little village, with all the drilling accoutrements compactly assembled thereon, and if it is far enough away from the shore, provides sleeping accommodation for the working crews, a field laboratory, and office space for keeping the records. The other alternative is a combination barge and piling arrangement which appears to offer a little more ready-made housing, as well as bases for a considerable portion of the equipment and supplies. It is to be noted that off certain sections of the California coast, seas are heavy for a good proportion of the year, and the problem of stabilizing the working structure, regardless of what shape it may take in consequence becomes somewhat more involved.

Returning again to the geophysical survey that is now going on, it may be of interest to describe briefly the **modus operandi:** When the recording ship has taken up its position as outlined by the survey ship, the first move in the process is to string out the geophones, or "jugs" as the operators call them. These are attached to a cable and are reeled out from the stern of the ship, with a tail boat holding the off end of the string to insure proper placing. The seismometer cable

The panel of the recording instruments is a complicated looking device, but it does a remarkable job of picking up reflected shock waves and translating them into visible form.

Inter-ship discussions and all orders with respect to placement of shots, lines, etc., go out over a radio telephone system. The transmitter seen here is in the darkroom of the recording ship.

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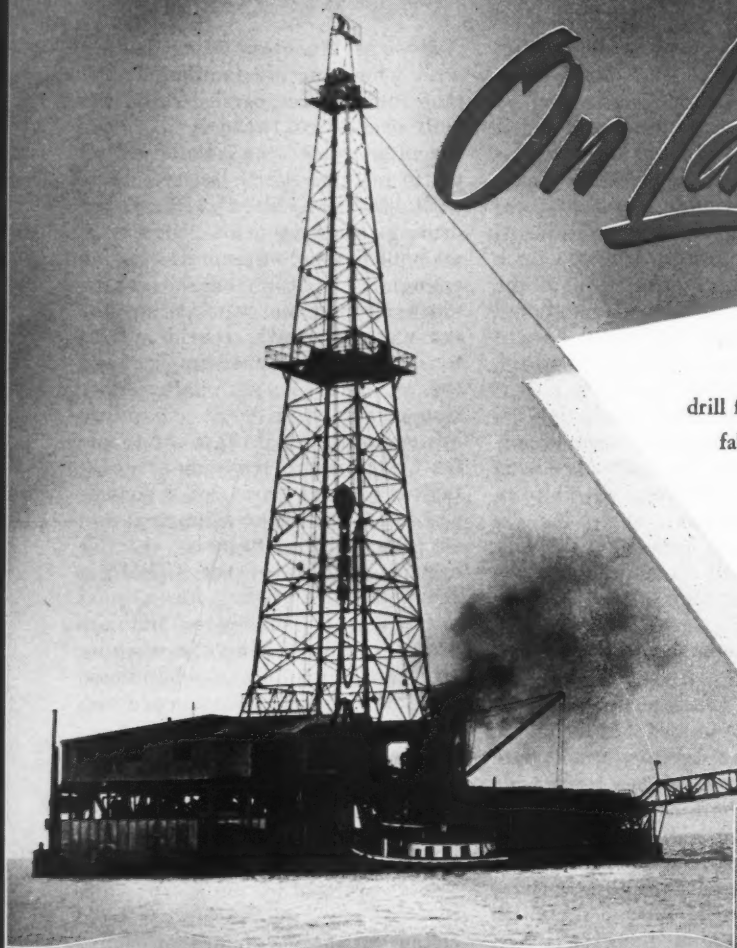
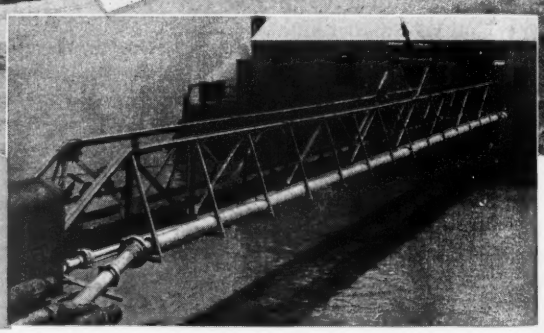


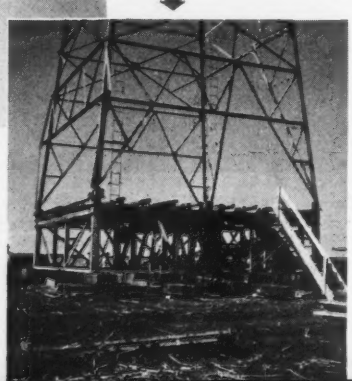


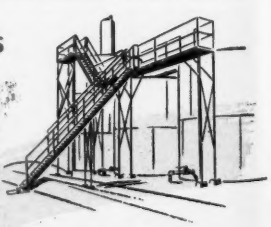
Drilling barge equipped with 136' high, 30' base, Emsco Type 18AR derrick. Note Emsco gin pole assembly, quadruple safety platform and 1st girt landing platform. Inset at right shows Emsco walkway used to connect drilling barge with boiler barge. Walkway is hinged permitting it to be raised during moving or when rough weather is encountered. Walkway supports pipe lines connecting barges.

Looking up 136', Emsco 18AR derrick equipped with Emsco 14GP, 16,600 lb. capacity gin pole assembly. Also note Emsco tong hangers and quadruple safety platform.

MISCELLANEOUS STRUCTURAL PRODUCTS

Rigging up an Emsco derrick on a 10' high, Emsco 60HX substructure. This substructure is designed for deep drilling operations requiring heavy, bulky blowout equipment and racking of large amounts of pipe on derrick floor. It is well suited for skidding operations.





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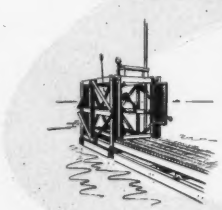
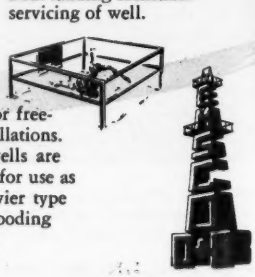


COMBINATION GUIDE CHUTE, WELL GUARD AND BOAT LANDING—protects offshore wells against damage from boats or heavy floating drift. Boat landing facilitates servicing of well.



WELL FENCES—available for free-flowing or pumping installations. Fences for free-flowing wells are of two types: a light unit for use as a cattle guard; and a heavier type for locations subject to flooding to protect well head from floating drift.

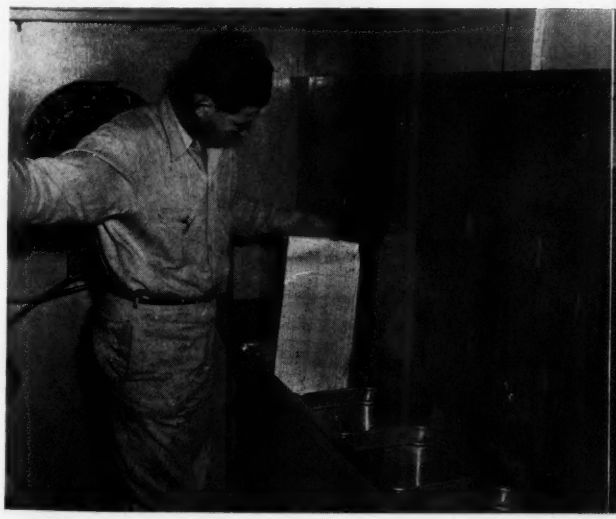
has a spread of approximately 1000 feet, with the jugs set 100 feet apart and so buoyed that they will float either on, or at a designated distance below, the surface. When placed below the surface sets of three geophones are used instead of single ones, so that **in toto** there are three times as many for the same distance. The individual geophones or the sets of three, as the case may be, are connected to the recording apparatus by well insulated electric wiring, and about the middle of the cable is a marker to guide the shooting boat in the accurate placing of the shot.

In the early experiments in marine exploration by geophysics, dynamite charges were placed right on the floor of the ocean, but this produced a phenomenon that distorted the results very badly. It was finally traced to impulses created by the successive expansion and contraction of air bubbles occasioned by the explosion of the charge. Efforts to overcome this difficulty were of no avail so long as the charge was left on bottom, but when it was brought to within a few feet of the surface, it no longer manifested itself. Bringing the charge close to the surface meant that a lot of the energy released by the explosive was lost into the air. By increasing the size of the charge, however, or its potency, enough energy found its way into the earth to furnish a reliable record.

When everything is set, the jugs all strung out in the correct position, and at the prescribed depth, the charge, primer and detonating cap are assembled, and the order to drop the charge is given over the radio phone on the recorder ship by the chief of the party. The shooting boat drops the charge and promptly makes off to a safe distance. Then comes the order to fire, the shot is discharged, and almost instantly the recording instrument picks up the reflections of the sound waves. Under the right conditions, and with a sufficiently powerful charge, reflected waves bounced back from formations as deep as 15,000 feet may be caught in the tracings. The reflections are picked up by the geophones and converted into electrical impulses. These are amplified, changed to light beams by a reflecting galvanometer, and recorded photographically as a series of wavy lines—one for each jug or trio of jugs. They tell the geophysicist with amazing accuracy what sort of formations the shock waves encountered as they traveled down into the earth.

In the meantime, since these readings are valueless without an indication whence they came, it is highly important that the exact scene of the shooting be oriented. This is contrived by visual methods utilizing a sextant or sextants to fix the position of the shot and cable lines in relation to shore markers. The actual locations are found by determining the angular relationship with three or more selected shore stations and then using a three arm protractor to fix the points. Time is also of necessity an important factor in the calculations, since the depths of the formations encountered are determined by the time it takes the reflected waves to arrive. It requires measurements in increments of 1/1000 of a second to do this job with the necessary degree of accuracy.

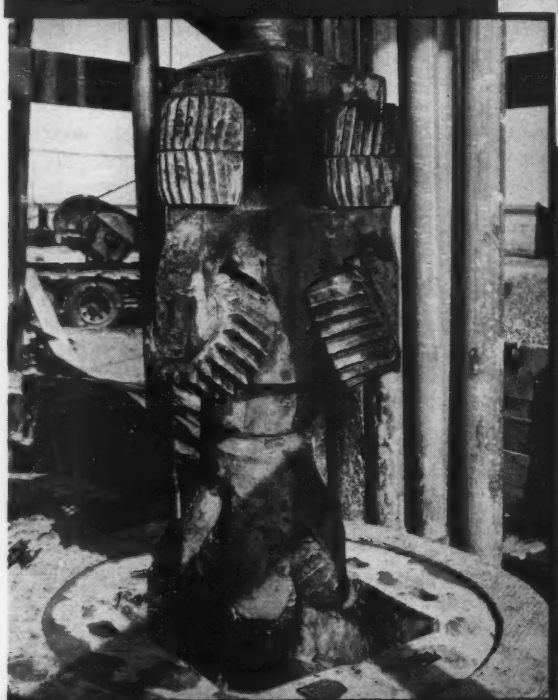
It is largely conceded that the results acquired from these marine explorations are of very reliable character, and they offer a good basis for a rational projection of subsurface conditions. The work of the parties is rarely impeded by fog, but occasionally a stoppage has to be called because of rough seas. It might be mentioned that the recording boat, the largest unit in the west coast survey fleet, is a thoroughly seaworthy craft that was a subchaser during the war. Now engaged in peacetime pursuits, it has been renamed very appropriately the Pacific Explorer, and it is at least temporary home to the group of some 23 geophysicists of which the party is comprised. Reports have it that the cost of a day's exploring is in the neighborhood of $2500 a day, which gives a slight idea of the great stake for which the involved oil concerns are aiming. It also shows that the oil com-



Development of the seismogram is performed in a dark room on the recording ship much in the same manner as one would develop a photographic print. Results of the shot become available in a very few minutes.

Here the seismogram is pinned to the wall and the operator is pointing out the succession of tracings that indicate to the geophysicist where, if anywhere, a formation favorable to the occurrence of oil may be expected.

Water Wells Drilled



Upper Right: Virgil Fowler (left), San Joaquin branch manager for H. C. Smith Oil Tool Co., and S. J. White, owner Pacific Coast Drilling Co., who drilled water well on Maricopa Farms by Old River (Paloma Field). Well was bottomed at 1000 feet and flowed at the rate of 3500 gallons per minute.

Lower Left: Close-up of 27½ inch H. C. Smith Hole Opener with 18⅝ inch rock bit which was used drilling this well.

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panies are no pikers when it comes to trying to assure the world of a future supply of the most important fluid, outside of water, known to man. The work of the crews moves along at a rapid pace. They fire as many as 120 shots a day, and there is a quite optimistic tone to the whole procedure that augurs well for the outcome of the project.

This superman development is typical of the modern thinking of petroleum industry management. The whole process is being carried on with a casualness that is indicative of the tremendous strides that have been made in all branches of science during the past decade or so. The first sea going seismic operation off the California coast took place in 1943, a scant five years ago, and developments in the meantime have been of great consequence. It is difficult for most of us to appreciate what has actually been accomplished in a comparatively short space of time. Not long ago oil finders, so called, favored "the forks of streams," and were constantly looking for "belts" and "ranges." All petroleum was believed to be produced from "cavities," and there was in general what we might consider now a delightful ignorance of the substrata. Today with increasing accuracy we can probe the earth to astonishing depths and we have learned to analyse underground conditions without physically disturbing them in any way, by the use of such once abstruse instruments as the reflection seismograph, and a well developed faculty for correlation.

It is a potent argument for free enterprise that the oil industry has continuously worked in advance of momentary need. There is no good reason for spending large sums of money to explore new type sources of petroleum and completely new methods of finding them at the present time, excepting that the petroleum industry is one of the most anticipatory businesses in existence. In every phase of development it works far beyond immediate requirement. That's why the continental shelf of California is being so thoroughly explored at the present time, and that is why millions are spent by the industry annually in every species of research and development.

It is a characteristic of the petroleum industry that it is eternally dissatisfied with the **status quo** in all phases of operation. It is probable, by virtue of special circumstances, that the finding sciences have been subjected to more study than many of the other instruments that constitute the total program. Finding is so basic that this is easy to understand. The very first requisite of successful operation is oil itself. And, again, geology, geophysics, paleontology, and the related sciences are ostensibly combinations of pure reason aided by technical instruments and machines. There are many scientific procedures and processes that can in time be carried out by rote—by simple familiarity with manipulation—but this is not true of geology, which from a series of surface observations and certain obscure measurements must reconstruct aeons of time, and rationalize the picture of a sub surface world that no one has ever seen.

California is by no means first in this interesting modern adventure. Surveys have been made on Lake Maracaibo, the Behring Sea, Persian Gulf, and other far flung waters. It is obvious, however, from the venture here described that the reflection seismograph has become very generally accepted as a means of searching out the subsurface structure of underseas lands. Otherwise we would certainly not have the interesting spectacle of thirteen companies joined in a project to secure through seismic exploration the adequacy of future petroleum supply. The companies now concerned are Continental Oil Co., General Petroleum Corporation, Hancock Oil Company, Honolulu Oil Company, Humble Oil Company, Ohio Oil Company, Richfield Oil Corporation, Shell Oil Co., Inc., Signal Oil & Gas Co., Standard of California, The Texas Company, Tide Water Associated Oil Company, and Union Oil Company. At least five more are expected to enter into the agreement before the general program begins on October 1, 1948. It is to be hoped that the exploration will be productive, and there is every likelihood that it will be, for it is not often that scientists are so unanimously optimistic as are the geologists with respect to the oil possibilities of the continental shelf.

Skilled Craftsmen Born of Saudi Oil

Vocational categories of Saudi Arabs formerly were as herders or farmers and merchants.

With the discovery of oil and the building of a refinery, however, they are becoming skilled craftsmen, according to the Standard Oiler, published monthly for company employees.

Many thousands work for the Arabian American Oil Company in many different classifications in the field, laboratories and the refinery.

Although many lack the formal education of their fellow workers, the periodical points out that the nationals are intelligent and fast to learn the complicated routine necessary in the manufacture of petroleum products.

Meters and testing apparatus at the Ras Tamura refinery are very complex. Most of the Arabs operating the equipment had to learn their respective jobs step-by-step.

About 65 are employed in the laboratory. They were especially chosen for their adaptability to learn and are carefully trained under a Saudi Arab instructor to perform various control tests with consummate accuracy.

Their progress is followed carefully. As they are able to perform satisfactorily the tests required in the next higher classification they are advanced at the first opportunity.

All ASTM (American Society of Testing Materials) refinery control tests are conducted on a shift basis under the guidance of an American supervisor. The results are then transmitted to the various plants in the refinery so that practically all tests that control refinery operations, such as the testing of shipping tanks and oil products being loaded aboard ship, are done by Saudi Arabs, supervised by Americans.

Les Dimon, Southern Counties Gas Co. compressor plant at Ventura, has been transferred to Blythe as maintenance engineer at the new plant there.

pH Control Through The Use of a Sulfur Burner

Elimination of Scale and Prevention of Delignification in Cooling Towers and Similar Equipment

R. C. Ulmer* and J. F. Churchill**
Power Chemicals Division
E. F. Drew & Co., Inc.
New York, N. Y.

September Meeting

Introduction

Millions of dollars are spent yearly in cleaning and replacing equipment in cooling water systems. In addition, owing to decreased heat transfer in the case of "dirty" equipment there are further losses either in efficiency or capacity amounting to still greater sums. Fortunately, in recent years a better understanding has been reached regarding these problems and improvements are possible. It is the purpose of this paper to review this information.

The Problem

In discussing cooling water problems we refer to any case where water is circulated through or over equipment to absorb or carry away heat. The chief types of equipment involved are cooling towers and related equipment for example in the petroleum field, engine jacket systems, refrigeration systems, steam condenser systems, air conditioning systems, etc. The systems referred to involve at least three types of cooling water systems which can be classified as follows:

1. Once-through systems.
2. Open circulating systems.
3. Closed circulating systems.

The names pretty much indicate the difference between the systems. Fortunately the problems involved are about the same for all three systems and are as follows:

a. **Scale and Deposit Formation:** Whenever water is heated or concentrated there is a tendency for materials to come out of solution or precipitate. The materials that precipitate may come out of solution on heating surfaces forming scale or some of the precipitated material suspended in the solution may deposit on the heating surfaces. In either case, decreased heat transfer rate occurs and therefore lower efficiency results. This is probably the most important problem encountered in such systems.

The chief material that precipitates when water is heated or concentrated is calcium carbonate ($CaCO_3$). Some difficulty is also encountered from the precipitation of iron oxide (Fe^2O^3). Both materials result from constituents that are normally soluble in the water. Whether difficulty will be encountered from the precipitation of these materials depends greatly on the pH of the solution. Most of the corrective measures for the prevention of scale and deposit in cooling water systems center around the elimination of the precipitation of these materials or upon the prevention of adherence of any of the materials that precipitate.

b. **Corrosion:** Since most waters contain dissolved oxygen and carbon dioxide, both of which have a tendency to cause corrosion, this problem is often encountered and is discussed later in greater detail. The problem of corrosion is usually combatted by proper pH adjustment.

c. **Algae and Slime:** This problem is so well known that it requires no explanation. Needless to say, during the "growing season" formation of such growths becomes a real nuisance and large losses result from decreased efficiency and capacity.

d. **Delignification:** This is an apparent rotting of the wood, the lignin and cellulose products being extracted leaving the wood in a stringy mass having little if any strength. This difficulty is caused almost entirely by the action of alkali on the wood. Proper control of the alkalinity or pH therefore is the chief means used to combat the problem.

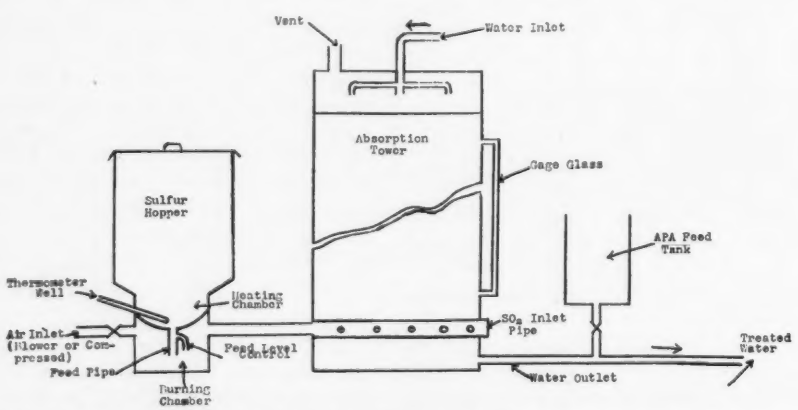

Fig. 2 Equipment Diagram of Sulfur Burner—APA System for Treatment of Water to Prevent Scale And/Or Lower the Alkalinity

Previous Corrective Means

The chief factors that affect scale or deposit formation are temperature, rate of heat transfer, calcium, magnesium, silica, sulfate and alkalinity concentrations and especially

pH value. Considerable work has been carried out to relate these factors to the problems encountered. By means of Langelier's equations, which take into consideration pH, calcium, total alkalinity, dissolved solids and temperature it is possible to predict with some degree of accuracy whether a water is scale forming or corrosive. The Langelier index is well known in this respect. The basis of the index is whether or not water is saturated with calcium carbonate. If it is, there of course is danger of deposit formation. If it is not, there is little if any danger of deposit formation, but there is danger of corrosion.

Some success has been experienced through the use of this index, but unfortunately its determination and calculation are rather involved which eliminates its use as a field method. Also, it is very difficult to adjust the condition of the water so that it is just non-scale-forming and at the same time not corrosive. For this reason other procedures have been used.

By far the most emphasis has been placed on the use of specific chemicals to prevent the precipitation of materials from the water. The chemicals used are largely of the complex phosphate type. None are 100% efficient and some deposits will form, especially if the pH exceeds 8.0 to 8.5. This has led to the incorporation of organic materials along with the phosphates to condition the material that does precipitate so as to make it non-adherent. Again it should be noted that the success of this method depends largely on pH control. In other words, the system is effective only if pH is below the range given. Sulfuric acid and other acidic materials have been used to some extent in an effort to control pH, but their usage has not been generally accepted owing either to hazards involved or to cost.

These chemicals also are advocated to eliminate corrosion if the pH is so low that corrosion will take place, for example, below 7.5. Needless to say, such a low pH in the cooling water itself is seldom encountered.

With respect to delignification, little attention has been given to this problem until recently. Fortunately as discussed later, the remedy is very simple.

Recommended Corrective Means

A consideration of the shortcomings of the previous corrective means referred to, together with the results of investigative research has led to the adoption of the use of an effective anti-precipitating agent in conjunction with a sulfur burner to control pH for the elimination of cooling water problems. A photograph of the essential equipment involved is shown in figure 1, and figure 2 shows a line diagram of a typical installation. Referring to figure 2, it will be noted that the essential equipment consists of a sulfur burner for forming sulfur dioxide and an absorption tower for absorbing the sulfur dioxide in the cooling water. The anti-precipitating agent is fed into the effluent from the absorption tower.

The actual construction, design and usage of the sulfur burner is discussed in greater detail in a bulletin dated 1-12-48 RCU, titled, "Scale Prevention and Alkalinity Control Through The Use of a Sulfur Burner." These bulletins are available upon request.

The burner is so designed and constructed as to require little care. In fact, once the burner is in operation all that is necessary is to fill the sulfur hopper once a day or so and to adjust the air supply. Either a compressed air line or a blower can be used to supply the air. The

Fig. 1 Typical Set-Up for Sulfur Burner—APA Treatment of Cooling Tower

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amount of air passed through the burner chamber governs the amount of sulfur burned and consequently the amount of alkalinity reduction. The leveling of sulfur in the burner chamber is automatic, all that is necessary being to adjust the gas flow through and around the hopper so as to maintain the molten sulfur in a certain temperature range. A by-pass valve is provided for this purpose. The gas passes from the burner to the absorption tower. A part or all of the water from the heat transfer equipment may be passed through the tower. The tower will handle 100 gallons/min. satisfactorily. This makes possible treating very large volumes of water, for example such as involved in large cooling towers or in large boiler plants since only a small fraction need be passed through the burner-tower combination.

The burners are currently available in three sizes. The large one will burn 3 to 15 pounds of sulfur per hour; the medium size one 1 to 5 pounds of sulfur per hour and the small one 0.2 to 1 pound of sulfur per hour. On the basis of sulfuric acid this corresponds in the case of the large burner to the use of 12.4 to 46.5 pounds of sulfuric acid per hour; the medium sized burner to the use of 3.1 to 15.5 pounds of sulfuric acid and in case of the small burner to the use of 0.62 to 3.1 pounds of sulfuric acid per hour. Larger burners can be supplied or several of the large size can be used in case more capacity is required.

From a chemical standpoint, in the burner the sulfur is burned to sulfur dioxide—

$$\underset{\text{Sulfur}}{S} + \underset{\text{Oxygen}}{O_2} \rightarrow \underset{\text{Sulfur Dioxide}}{SO_2}$$

The sulfur dioxide dissolves in the water in the absorption tower forming sulfurous acid—

$$\underset{\text{Sulfur Dioxide}}{SO_2} + \underset{\text{Water}}{H_2O} \rightarrow \underset{\text{Sulfurous Acid}}{H_2SO_3}$$

The sulfurous acid formed reacts with any alkalinity present, for example sodium bicarbonate or calcium bicarbonate, neutralizing it—

$$\underset{\text{Sodium Bicarbonate}}{2NaHCO_3} + \underset{\text{Sulfurous Acid}}{H_2SO_3} \rightarrow \underset{\text{Sodium Sulfite}}{Na_2SO_3} + \underset{\text{Water}}{2H_2O} + \underset{\text{Carbon Dioxide}}{2CO_2}$$

In reducing alkalinity 0.32 ppm of sulfur when burned will neutralize 1 ppm of alkalinity expressed as calcium carbonate. Consequently, 0.32 pounds of sulfur will be required for each ppm of alkalinity reduction desired for each 1,000,000 pounds of water involved. Expressed on the basis of 1,000 gallons, this amounts to 0.0027 pounds of sulfur per ppm alkalinity reduction desired per 1,000 gallons of water involved.

Approximately 3.1 times by weight as much sulfuric acid as sulfur is required for alkalinity reduction. Currently sulfur costs about 0.9 cents per pound and sulfuric acid about 1.6 cents per pound. Consequently, 0.9 cents worth of sulfur will reduce as much alkalinity as 4.9 cents worth of sulfuric acid. On a million pound of water basis, following are the pertinent data on the relative costs per ppm reduction:

	Sulfuric Acid	Sulfur
lbs./ppm reduction/1,000,000 lbs. H_2O	0.99	0.32
Cost cents/ppm reduction/1,000,000 lbs. H_2O	1.6	0.29

Consequently, it is obvious that in addition to being more convenient and safe to use, sulfur through the use of the sulfur burner is much cheaper than sulfuric acid for alkalinity reduction. Thus pH control is possible and practical and when the burner is used in conjunction with a proper anti-precipitating agent, scale and deposit formation and corrosion will be eliminated. It should be noted that through the use of the sulfur burner proper pH control is made possible without the hazards and high costs normally involved in previously used methods.

As to algae and slime control, in general fairly satisfactory results have been obtained with materials currently available. The chief materials being used are chlorine and compounds based on chlorine, phenates or compounds based on phenol, copper sulfate, and more recently bromine and complex amonium compounds. In some cases the organisms build up a tolerance to any one of the materials listed, in which case it may be necessary to switch to one of the others for a short period.

Although too recent for any definite conclusion, there are indications that the use of the sulfur burner will decrease or eliminate the growth of algae and slime. At present it is not known whether the action is one of toxicity or of decreased oxygen content. In any case, in the installations made so far it has not been necessary to use supplementary treatment for algae control.

As mentioned previously delignification of wood is eliminated and prevented through the control of pH with the sulfur burner. A pH of 8.0 to 8.5, which is necessary in any case for scale prevention, insures little if any attack on the wood.

PLANT A.

	Make-up	Main Tower*	Main Tower**
pH	7.6	8.0	7.5
Phenol-alkalinity ($CaCO_3$)	0	0	0
Total alkalinity ($CaCO_3$)	260	350	99
Hydrate alkalinity ($CaCO_3$)	0	0	0
Total Hardness ($CaCO_3$)	499	1950	1150
Chlorides (Cl)	49	208	103
Sulfates (SO_4)	531	2400	1408
Silica (SiO_2)	19	70	43
Phosphate (PO_4)	0	4	5

Note: Results are in p.p.m.
* Operating as single unit.
** Operating with some tower water used as make-up for 5 other towers.

PLANT B.

	RAW	Main Tower Basin
pH	7.8	8.2
Phenol-alkalinity ($CaCO_3$)	0	0
Total Alkalinity ($CaCO_3$)	190	200-300
Total Hardness ($CaCO_3$)	105	700-800
Chloride (Cl)	33	120-180
Sulfate (SO_4)	8	540-750

OPERATING DATA

Above are typical data for plants operating with the sulfur burner. Plant A is in the California area and Plant B in the Texas area.

In the case of Plant A before the

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use of the sulfur burner, practically every type of treatment was tried but bad scaling occurred because of the high pH. After starting use of the sulfur burner in conjunction with anti-precipitation treatment, the old scale gradually disappeared and no new scale was formed. Also, no corrosion or algae has been experienced.

About the same operating conditions were experienced at Plant B.

Before the use of the sulfur burner design terminal temperature differences of 5.0 F. were exceeded values of 16 to 24 F. being common. This condition would often occur in 60 days. Since this tower supplied cooling water for condensers on turbines it is obvious that a serious decrease in efficiency and capacity resulted. With the burner, in general, design conditions are maintained although values as high as 8 F. sometimes occur.

CONCLUSIONS

In recent years the chemical and physical aspects of scale and deposit formations and of corrosion in cooling water systems have been fairly well determined. Delignification or deterioration of wood in such systems also is understood. In the cases mentioned, the presence of too much alkalinity, that is a high pH, in the cooling water is the chief cause of the difficulties. In the past, little if anything has been done to correct these situations largely because the acid required is hazardous to use and other acidic materials are too costly. Now owing to the practical application of a sulfur burner and a proper anti-precipitation agent to these problems, a practical solution is possible at little cost and with little maintenance and labor. Proper operation of equipment at high efficiency and capacity and with a minimum of cost and upkeep is thus insured.

* Technical Director.
** West Coast Divisional Manager.

Conejo Try Idle

Ti-Bell Drilling and Roy, Inc. has not as yet resumed work in its Janss No. 1 wildcat on Sec. 33-2n-19w in the Conejo area, which has been idle at 7240 ft. for some months.

The Meaning of America

Herbert Hoover, in a talk made in the little town of West Branch, Iowa, where he was born, gave one of the finest expressions ever made of what this country stands for.

"America means far more than a continent bounded by two oceans," he said. "It is more than pride of military power, glory in war, or in victory. It means more than the vast expanse of farms, of great factories or mines, magnificent cities, or millions of automobiles and radios. It is more even than the traditions of the great tide westward from Europe which pioneered the conquest of a continent. It is more than our literature, our music, our poetry . .

"The meaning of our word 'America' flows from one pure spring. The soul of our America is in its freedom of mind and spirit in man. Here alone are the open windows through which pours the sunlight of the human spirit. Here alone is human dignity not a dream, but an accomplishment."

Those who attempt to interpret the greatness of this country in purely material terms are blind to the basic truths. Other nations possess resources which are comparable to ours. We have no monopoly on intelligence, on knowledge, on energy, on the potential ability to create and build. But here, alone of the great powers of the modern world, we have maintained the right of the individual to do whatever he pleases within the framework of the law. We have said, in effect, that the man controls the state—and the state does not control the man.

This has been one of the greatest achievements in the whole vast sweep of recorded history. Yet we must never forget that freedom must always be guarded and defended if it is to live. Elsewhere in his address, speaking of his boyhood, Mr. Hoover said, "In those primitive days, social security was had from the cellar, not from the Federal government." The most dangerous tendency of our times lies in our ever-increasing dependence on government. When we buy a dubious "security" at the price of loss of personal liberty, we are following the same old downhill path that has led to oppression and dictatorship throughout the world.

The real American values are spiritual. All other values, like all our wealth and power, stems from them alone. They have sustained us in every period of adversity, ranging from disastrous depressions to terrible wars. And in those values, based as they are upon the dignity and rights of man, we can find the real meaning of America.

Working Together

The interdependence of the $20,000,000,000 oil industry and the $111,000,000,000 agricultural industry is the subject of a recent news release. The changeover from man and animal power to petroleum power has been one of the basic causes of a remarkable increase in farm production in late years.

Last year, there were nearly 3,000,000 fewer workers and 5,000,000 fewer draft animals on American farms than in 1940. Yet food production was 35 per cent greater. Today American farmers use more than 3,000,000 tractors, 1,880,000 trucks and close to 5,000,000 motor cars. On top of that oil powers a long list of other tools from gigantic self-propelled combines to such specialized equipment as cotton pickers and nut harvesters.

Agriculture, therefore, is one of the oil industry's best and most dependable customers. But the buying isn't all on one side. The industry consumes more than 40,000,000 pounds of agricultural products each year, not counting food. Tons of animal and vegetable oils are used in the manufacture of special greases. Wheat bran, cottonseed hulls and other products are employed to plug porous underground formations found when drilling wells.

This is just one excellent example of how all elements in a free enterprise economy work directly and indirectly to the betterment of each other. And that, in turn, is why this country leads the world in the production of goods of every kind, and in the living standards of the people.

Sespe Test Grades Ground

Grading ground is Merchants Petroleum Corp. for its Bonebrake No. 1 test at Sespe in Sec. 6-4n-19w, Ventura County.

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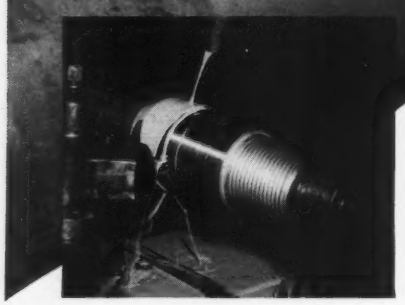

1 WORN JOINTS are "peeled"... surface machined to remove cut-outs and scars, restore original roundness.

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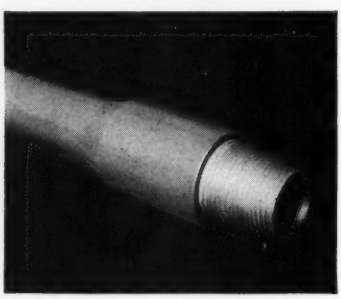

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Southern California Meter Association

Purpose - History - Activities

The Southern California Meter Association was founded in the early days of orifice meter measurement at a time when no generally recognized standards had been established for orifice meter measurement.

A group of men, working with meters and instruments for the various utility and oil companies handling natural gas in the Los Angeles Basin Area, decided that there should be a common meeting ground for men interested in the measurement and control of gas and other fluids and that an Association should be formed for the purpose of exchanging information and for the establishing and adopting of standard metering procedures. Twelve of these men met on July 14, 1927 and founded this Association, which Association now has a membership over 400 with members located in all parts of the United States, Mexico and Canada. This splendid growth has been accomplished by the leadership and support of members who have an interest and faith in their profession. No company or corporation has a voice in the government of this Association.

The purpose of this Association as set forth in the Constitution and By-Laws is, "The activities of this Association shall at all times be guided by a dual purpose: (a) To ascertain the facts wherever differences of practice, procedure or opinion regarding fluid meters instruments or controllers exists, to duly substantiate same by practical and scientific methods, and report same in formal papers designed to be filed among the archives of the Association, to the end that the resulting material or information may be equally available to all members. (b) To compile a booklet of systematically arranged information pertaining broadly to fluid meters, instruments or controllers, and publish the same over the name of the Association."

For over 20 years the Association has successfully supplied the meter and instrument men with what they want—professional standards, education and fellowship. Leadership has been by the most active and interested members and the benefit of membership has always been open to anyone who would signify a willingness to support the Association.

Dinner meetings are held each month; ten of them through the year being devoted to technical papers with talks or motion pictures on subjects of general interest being occasionally added to the evening's program. Manufacturers or their sales representatives, who are sustaining members in the Association, are given the privilege of presenting to the membership any new equipment they develop. The June meeting is designated as the Low-Jinks—election of officers and a show taking up the evening. February is the one month when all business is dispensed with and the Annual Hi-Jinks holds forth.

Members outside of the Los Angeles Area are not forgotten as papers pertaining to measurement and control presented before the Association are mimeographed and mailed to all members. Past papers, while they last may be purchased for 50 cents each. Members also receive free any new data sheets or revisions that are developed for the Association's Handbook. The complete Handbook, containing some 150 loose leaf data sheets covering the measurement of fluids and other pertinent engineering information, is available for $3.00 without binder or $4.75 with binder. Individual data sheets are available @ $.05 each.

The Association has four forms of membership—Active, Associate, Sustaining and Affiliated.

Active Membership: Extended to those engaged in the measurement and control of fluids (gas, oil, steam, water) other than the design, manufacture, or sale thereof. Dues $2.50 Annually.

Associate Membership: Extended to those connected with the design manufacturer, or sale of fluid meters, regulator, or any equipment pertaining to the measurement or control of fluids. Dues $2.50 Annually.

Sustaining Membership: Extended to any firm, company or corporation who employ individuals as set forth in the two classes above. Dues $15.00 annually.

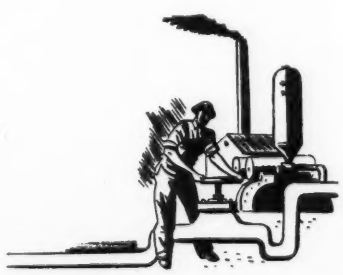
Affiliated Membership: Extended to any one not heretofore classified but who is interested in measurement and control of fluids. Dues $2.50 Annually.

The Southern California Meter Association is sponsoring the Measurement and Control Instrument Exposition to be held at the Long Beach Municipal Auditorium on October 22nd and 23rd.

This will be the largest and most complete exhibit to be held in the West in many years.

There will be displays and demonstrations of new and latest equipment used for the measurement and control of gases and liquids, equipment for the gas utilities, gasoline plants, gas and oil field work, and industrial plants of all types.

Exhibits have been chosen for practical and technical interest to the executive, engineer, field operator, plant operator, and student.

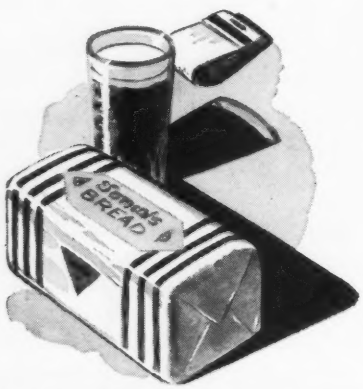


How the profit system reduces waste

1. For years Santa Maria Valley, in California, has been a steady producer of natural gas. But Santa Maria gas contains a high percentage of CO_2—carbon dioxide. As any high school chemistry student knows, CO_2 will not burn. So in order to give the Santa Maria product sufficient B. T. U.'s to meet household requirements, additional propane or butane had to be added to it.

2. This was wasteful in two ways. It took propane or butane that could be used elsewhere. And it wasted CO_2 which, when extracted, has many commercial uses. (Among other things, CO_2 puts the "fizz" in soda pop and makes dry ice.) Dry ice interested us particularly because it takes large volumes of CO_2. So when the market for dry ice developed to a point where it justified some rather large plant expenditures, we went to work.

3. We built a CO_2 extraction plant at Santa Maria and we have a dry ice plant under construction. As a result we can purify the natural gas so that it needs no additional propane or butane. And we'll soon be able to turn the CO_2 into a useful sales item. This example is typical of developments that are going on continually at Union Oil.



4. Take wax, for example. Every time you strike a match, buy a loaf of bread or put up a glass of homemade jelly you come in contact with paraffin wax—a very useful by-product of the petroleum industry. Ever since the development of propane solvent refining it has been known that certain high melting point waxes were present in the residues left over from this modern lube oil refining process.

5. But until 1941 no one had perfected an economical way to extract them. After patient experimenting, Union Oil's research department finally developed a process that would do the job. Since then this process has been converting residues—which used to be run back to fuel oil—into high-quality paraffin waxes. (The two grades of this *Aristo Wax* have melting points of 143°/150° and 160°/165° F.)

6. To us, these incidents are typical examples of how our free, competitive economy constantly reduces waste and inefficiency. The profit incentive keeps each individual and each individual company continually striving for ways to increase the quality and usefulness of products. Consequently, you have the combined efforts of *millions* of people working on problems that are supposed to be solved in a planned economy by the *handful* of men who direct the State.

UNION OIL COMPANY
OF CALIFORNIA

INCORPORATED IN CALIFORNIA, OCTOBER 17, 1890

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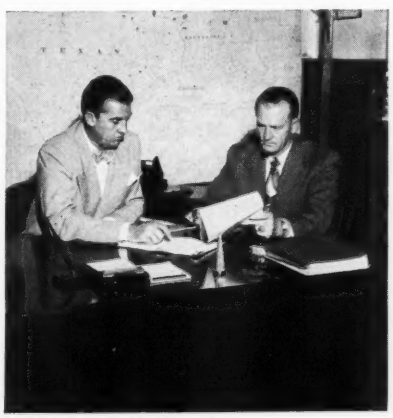
Standing (left to right): James E. Adams, Signal Oil & Gas Co., Treasurer Exposition Committee. Program Chairman for Association; Merrill Berkley, Berkley Engineering & Equip. Co., Member Exposition Committee; C. G. Cortelyou, General Petroleum Corp., Past Pres. Meter Association, Exposition Committee Member; George H. Forster, Jr., Past President, Present Secretary-Treasurer of Association, Secretary of Exposition Committee; (seated) J. C. Groenewegen, Shell Oil Company, Inc., President Southern Calif. Meter Association, Exposition Committee Member; Jim Gesner, Reliance Regulator Corp., General Chairman Exposition Committee; E. P. Valby, Richfield Oil Corp., Vice President of Association, Exposition Committee Member.

D+B Acquires Mid-Continent Distribution of Page Oil Tools

Wm. C. Kinder, Vice-President and Manager of the D+B Division of the Emsco Derrick & Equipment Company, is here shown signing a contract with John S. Page, inventor of the Page tension type production equipment and President of the Page Oil Tools, Inc., wherein the D+B Division of Emsco acquired the exclusive distribution of Page oil tools in all fields of the United States, with the exception of the Pacific Coast states.

The Page equipment will be stocked in D+B stores and Continental Supply Company stores. These products will be sold and serviced in a manner identical to all D+B production equipment.

Production tools developed and manufactured by Page Oil Tools, Inc., have gained wide acceptance in both California and Rocky Mountain areas. Page tools include tubing anchors for anchoring tubing in pre-set tension and parallel string tubing anchors for anchoring both regular tubing and parallel string in pre-set tension. In addition, the company has developed and has in manufacture adjustable pump anchor packers, rotating bottom hole packers, combination tubing drains and bumper subs, bottom hole oil and gas separators, and sucker rod on and off attachments.

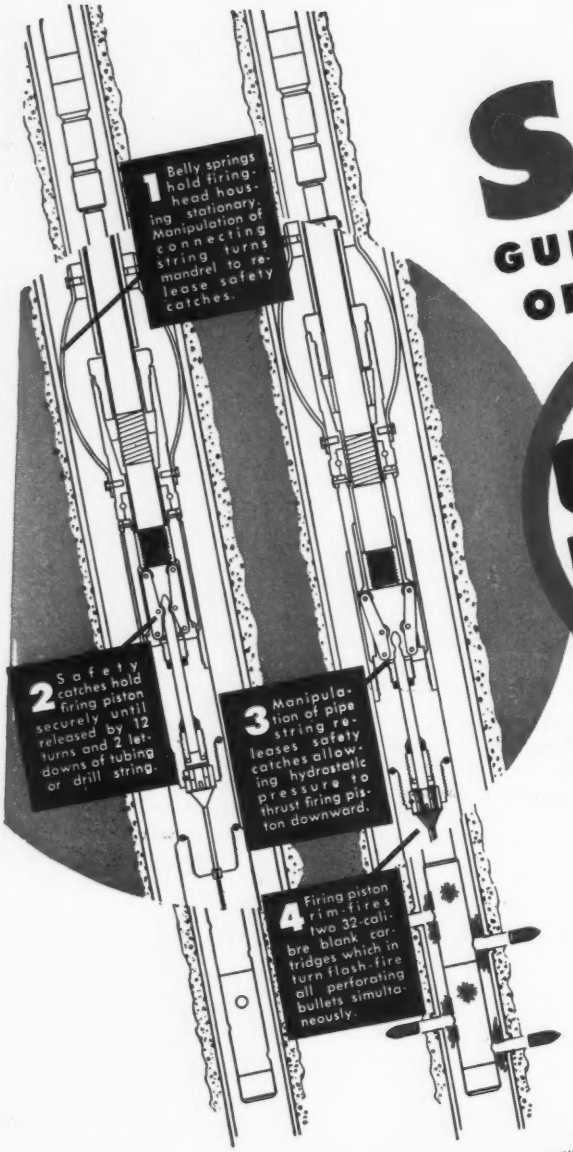


Page oil tools were on exhibition at the recent Tulsa Oil Show and met with enthusiastic reception.

John P. Herrick of Oleum, N. Y., conceived and has proposed the issuance of a special three-cent postage stamp next year on the 90th anniversary of the first well drilled for oil in the United States at Titusville, Pa. The idea has been endorsed by oil leaders.

W. L. McAllister, Walter Bilicke and Claude Kavanaugh are directors of the new company known as Twenty Wells, Inc. Kavanaugh also is identified with an interesting test at Castaic.

Safer GUN PERFORATING OPERATIONS with SHOOT-N-TEST


1 Belly springs hold firing-head housing stationary. Manipulation of connecting string turns mandrel to release safety catches.
2 Safety catches hold firing piston securely until released by 12 turns and 2 let-downs of tubing or drill string.
3 Manipulation of pipe string releases safety catches allowing hydrostatic pressure to thrust firing piston downward.
4 Firing piston rim-fires two 32-calibre blank cartridges which in turn flash-fire all perforating bullets simultaneously.

The "SHOOT-N-TEST" Gun Perforator Firing-Head ready to fire.

The "SHOOT-N-TEST" Gun Perforator at the moment of fire.

THE JOHNSTON ALL PURPOSE GUN PERFORATOR

THE JOHNSTON "SHOOT-N-TEST" Gun Perforator provides complete safety in every phase of gun perforating operations—maintenance, transportation to and from well, rig-floor handling and running in the well. The "SHOOT-N-TEST" fires *only* when subjected to *both* in-the-hole hydrostatic pressure and precise top-hole manipulation of the tubing or drill string by the driller.

Many advanced features are embodied in the Johnston "SHOOT-N-TEST" Gun Perforator to make it the ideal choice for operators desiring the utmost safety and efficiency in perforating and formation testing equipment . . .

POSITIVE FIRE of all bullets is assured by the flash-hole design of the perforating gun bodies.

EXACT POSITIONING in zone to be perforated is determined by actual pipe-in-the-hole tally.

SELECTED NUMBER OF PERFORATIONS is determined by the number of 4, 5 or 6-shot perforating gun body sections attached to the firing-head.

A MINIMUM OF EXPENDABLE PARTS for each perforating job. No extra equipment other than the "SHOOT-N-TEST" Firing-Head, the Perforating Gun Body Sections and a minimum of reloading supplies is needed.

Write for new descriptive folder!

FOR PERFORATING CASING AND TESTING FORMATION IN ONE RUN

By utilizing the Johnston "SHOOT-N-TEST" Gun Perforator with a regular Johnston Formation Tester Assembly, any designated formation can be perforated and tested in one round trip of tubing or drill string. A quick, efficient method of obtaining water shut-off information, doing exploratory work or testing for actual production.

SHOOT-N-TEST Trademark — JOHNSTON FORMATION AND CASING TESTING

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CHICHASHA, OKLAHOMA

The Instrument Department of Los Angeles Refinery Union Oil Company of California

By
Robert F. Angell, Foreman

The Southern California Meter Association had its August meeting at the Union Oil Company of California refinery at Wilmington. One hundred and twenty-two were present for the banquet dinner served in the company's cafeteria, and many came afterward to attend the meeting and tour of the Instrument Shop and the training quarters. Besides a welcome from President Groenwegen of the S.C.M.A., Mr. N. J. King, Supervisor of Employee Relations at the refinery, spoke on the importance of training and Mr. D. D. Brymer, Training Coordinator at the refinery, spoke on the training program. After the meeting the guests visited the instrument shop and the company's training quarters, and much interest was shown in the well equipped shop and the extensive training quarters.

The paper that is presented here was read to the group as an introduction to the tour. As this refinery has some of the finest facilities on the coast for training instrumentation, we believe this paper will be of interest to our readers.

The Instrument Department of this refinery was started approximately thirty years ago and has passed through many interesting stages. The few instruments in the beginning days, consisted of the normal complement of pressure gauges, a dozen or less orifice meters and some of the early gas filled temperature recorders.

Two of our first assignments were to see if we could measure petroleum products by orifice meters and to investgate the possibilities of the few existing automatic temperature controls on the market.

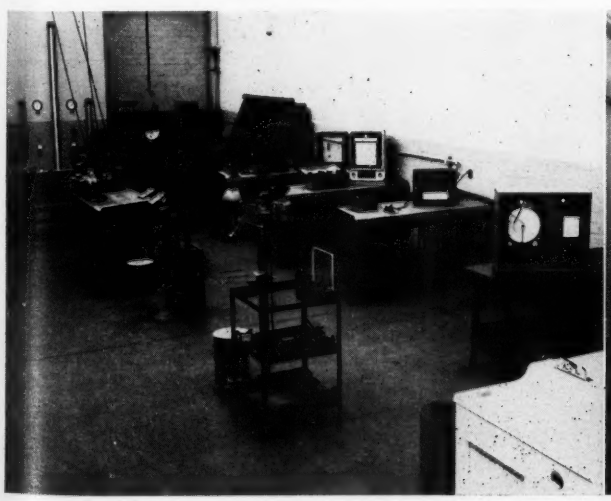
The instrument man had a sort of a selling job in those days. First he had to sell management on the profit possibilities and better control that would be derived from an expenditure for instruments. Then he had to convince the instrument manufacturer that an instrument he made would do the job desired, or that he should build an instrument to do the job. Finally, after the instrument was installed it was necessary to sell the operator on the fact that the recorder was not a tell-tale but would actually help him to do a better job easier.

The work, always being fascinating and each new problem a challenge to a man's wits, attracted many very interested and enthusiastic persons and they have contributed greatly to the progress that has been made in instrumentation.

The Southern California Meter Association, which was organized in 1927 with a group of approximately 100 enthusiastic men is certain proof of this fact.

Instrumentation is aptly defined as the art of measurement for purposes of control. However, our work at this refinery falls into a few specific categories and we have become specialists in the measurement and control of temperature, pressure, flow, and liquid level. Because of the many instruments used in connection with the above measurements, and the many new developments in analyzer instruments, a fifth category had to be added. For lack of a better name we have called this division Miscellaneous Instruments. This division includes instruments for the measurements and control of steam quality; specific gravity; concentration pH; humidity; gas analysis, etc. All of our file cards, instruments histories, computations, symbols, etc., are divided into these five categories.

Having seen instrumentation progress hand in hand with refinery processes in the last 25 years, we like to feel that we are specialists in a certain phase of refining. Defi-



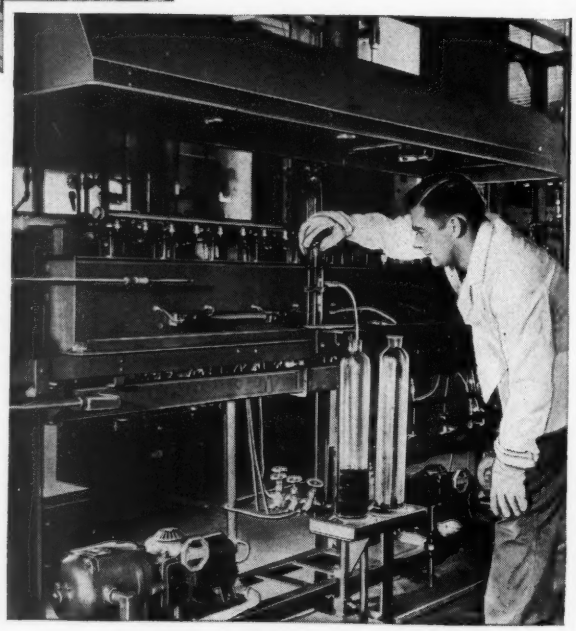
One of the instrument control rooms

A portion of the instrument shop

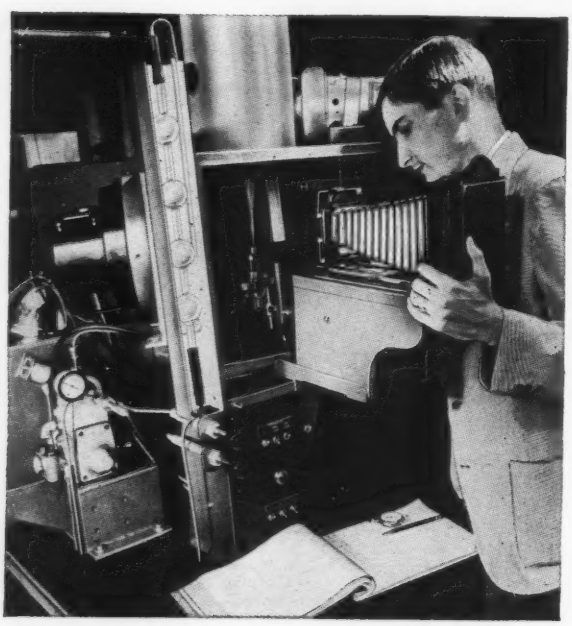
We try to be our own toughest customers!

OUR technicians are tougher than our customers. They demand that Texaco lubricants and fuels more than meet the requirements of specified jobs. That's why Texaco products are producing greater efficiency and economy for industry and transportation throughout the world.

Bringing a 600 horsepower railroad Diesel unit right into the laboratory enables Texaco engineers to make "transcontinental runs" and other severe tests under controlled conditions . . . a step to assure the maximum efficiency and economy of Texaco Diesel fuels and lubricants in actual railroad service.



Anticipating expansion of furfural installations, Texaco is installing a new pilot plant in its laboratories. With this unit, Texaco can help licensees of furfural process to modernize old equipment and to improve the design of new units.



High speed photography and stroboscopic light make possible study of unknown fuel spray patterns of injection nozzles in internal combustion engines. New test stand gives results which have helped to produce greater efficiency of air and fuel use in engines.

THE TEXAS COMPANY

Petroleum Promotes Progress

TEXACO REG. T.M.

nitely with the advent of more and more complicated controls and complicated processes, it becomes necessary for the instrument man to know more and more about refining processes, and the operating and process men to know more and more about instrumentation.

Process control and instrumentation are so closely allied that this point cannot be over emphasized. Success in process control and success in instrumentation can only be accomplished by the closest cooperation and understanding between process men and instrument men.

Functions of the Instrument Department

Many of you might consider us merely as maintenance men in a department which always operates in the red, and as men who simply repair instruments. Naturally there is some repairing to be done, but if any instrument department finds itself spending over 50% of its time repairing instruments in the shop, it definitely is not functioning as a good instrument department should function.

It is our job to keep the instruments operating continuously, accurately and efficiently in the field 24 hours a day.

Our three direct functions might be listed as:

1. Proper selection of instruments
2. Installation of instruments
3. Maintenance of instruments

We are definitely interested in the proper selection of instruments, and work in close contact with our Engineering Department, our Process Department and our operating departments in the selection of new instruments. We make an effort to keep in touch with the latest developments in the field of instrumentation, and never hesitate to ask for help or advice from any department within our Company or contact the best talent in Southern California. We have a book of standards which was developed by the combined efforts of the above mentioned departments. This book serves as an aid in making the proper selection and helps maintain workable standards within the refinery.

Actual requests for jobs requiring a new installation can come to us by several methods. The Engineering Department might call us and tell us of a job. We would go over the following points with them and contact the operating or process department for additional information if needed.

Proper selection depends upon:

1. A knowledge of the basic fundamentals of the process.
2. A knowledge of the functions the instrument is to perform.
3. Sensitivity and accuracy required.
4. Proper design for the location desired.
5. Many additional operating details.

Sometimes the operating superintendents discuss a measurement or control problem with us direct, before issuing an order. We are able to make recommendations to them, after searching our files and talking over the problem with them.

The second direct function is the installation. We oversee new instrument installations by working in close contact with the other craft foremen and we also have pipefitters assigned to us whom we direct in this work.

On large installations, which are performed either by our own forces or by outside contractors we appoint an instrument inspector to watch the job continuously.

There are many important details which must be considered when making a new installation. This consideration must necessarily be based upon past experience and the best available technical information.

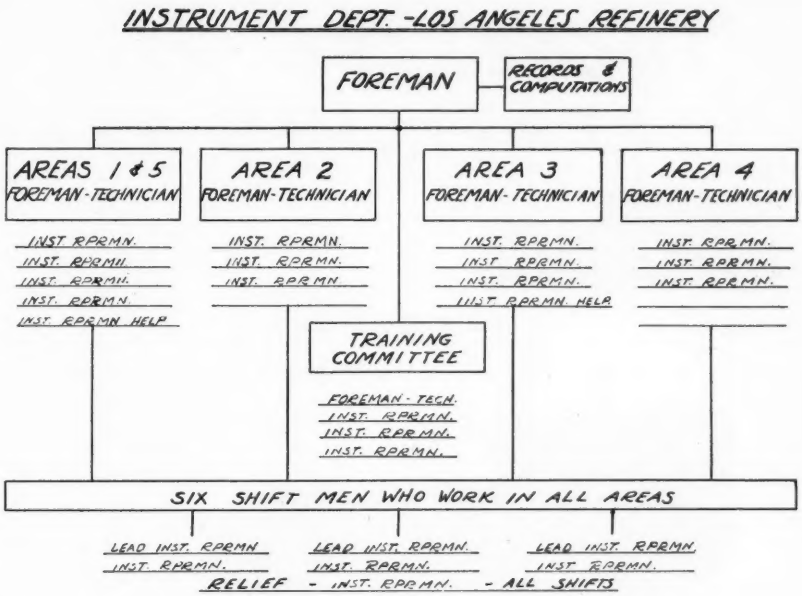
An instrument improperly installed is seldom accurate, always expensive to maintain and is a general source of annoyance to everybody concerned.

It is a paying proposition to correct a faulty installation and this also would come under this second function.

The maintenance of instruments is the third direct function, and begins with proper selection and proper installation. It is then necessary to start the instrument, observe its operation and its correct relation to the process, and then to keep it functioning efficiently 24 hours per day. Standardization of instruments and methods simplify this, but the most important factor in the successful maintenance of instruments is an aggressive preventative maintenance program carried on by a well trained, interested, and enthusiastic group of service men in the field.

To carry on such a preventative maintenance program we must:

1. Make numerous periodic inspections.
2. Have adequate records.
   a. To predict when overhauls are needed.
   b. To prepare for scheduled shutdowns.
3. Have a complete instruction book file.

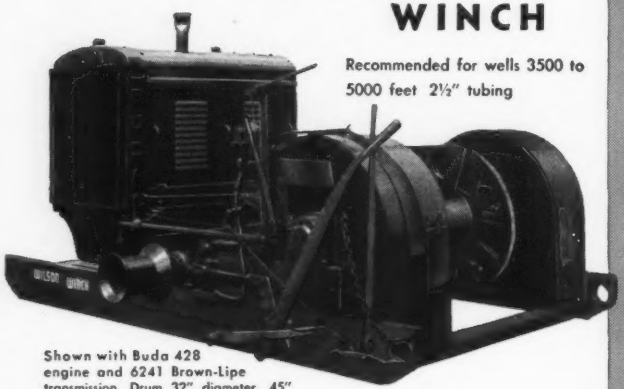


INCREASED WELL SERVICING EFFICIENCY

Wilson

SUPER MODEL WINCH

Recommended for wells 3500 to 5000 feet 2½" tubing



Shown with Buda 428 engine and 6241 Brown-Lipe transmission Drum 32" diameter, 45" long, 13" diameter barrel, 8" wide brakes. Cut shows streamline guards on this machine.

Wilson

SENIOR MODEL WINCH

Recommended for wells up to 3500 feet. 2½" tubing

Note full length countershaft with catheads on both ends. Rotary drive sprocket and clutch can be substituted for left cathead. Shown with seat control. Derrick Floor control is standard.

write for the new WILSON Silver Anniversary Catalog.

Longer life, faster operation, more time on the job is what you get when your winch is a Wilson. Powerful, self-energizing brakes give instant response when needed. Jaw or friction clutches are optional, each the best of its type (Super and Mogul Models can be equipped with the Wilson Air-Tube Disc Clutch). Four or eight forward speeds and one or two reverse speeds make these winches flexible enough for all requirements... complete reinforcement gives unsurpassed strength and ability to withstand punishment.

★

- CAST, SEMI-STEEL BRAKE RINGS machined after assembly for true running braking surface
- WILSON DISC TYPE FRICTION DRUM CLUTCH, or FREE ROLLING JAW CLUTCH DRUMS, optional
- FULL HARDENED, DOUBLE STEP, REPLACEABLE JAW CLUTCHES
- CAM OPERATED, FULLY EQUALIZED SELF-ENERGIZING BRAKES, OF FULL WRAP TYPE
- ALLOY STEEL, DOUBLE HEAT TREATED SHAFTS, accurately ground to size
- SPLINED SHAFTS wherever possible
- HEAVY DRUM BARRELS, reinforced inside
- DRUM ENDS REINFORCED WITH HEAVY "T" SECTION RIBS
- DRUM BEARING BOLTS CLEAR THROUGH FRAME

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4. Have a good stock of replacement parts.
   a. We stock approximately 4,000 small parts items.
   b. We have approximately 28,000 parts in our store room.
   c. We keep one man busy repairing and sorting small parts, and special tools, and keeping records.
5. Have a well equipped shop with many special tools, and with special test equipment.
6. Develop and standardize techniques for field testing.
7. Be constantly alert for better methods and better equipment.
8. Strive continually to raise the standards of our personnel.

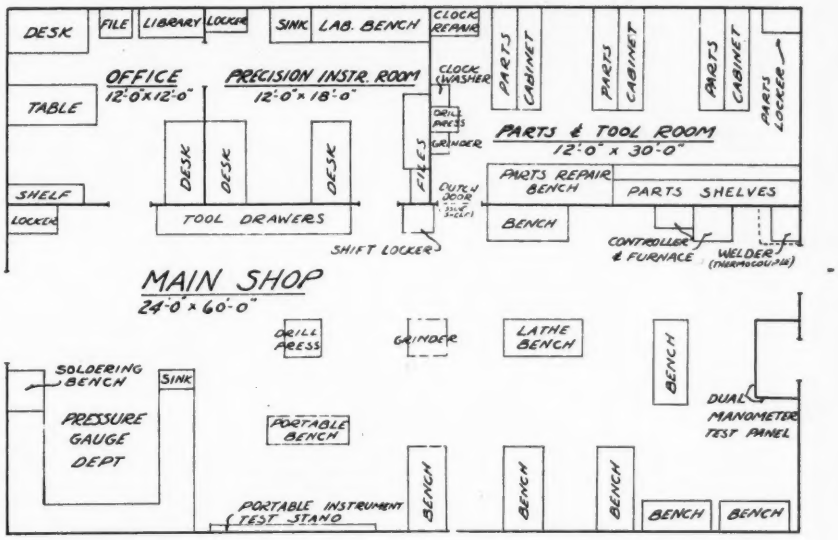
To be a successful instrument service man one must be interested and enthusiastic about instruments and controls, and be a sort of a cross between a good mechanic, a diplomat, a magician, an old maid for details and must know about operating processes. Some of our best service men are ex-operators.

It is one of our functions to try to keep up this essential interest and enthusiasm for this work, and to keep our men trained ahead of the time all of the time. It is therefore, necessary for us to carry on a continuous training program and maintain a library on instrumentation, and this becomes a secondary function of the instrument department.

Organization and Personnel

The attached organization chart will show that we have divided the refinery into four areas. Each area is of such a geographical size and includes such a scope of instruments and processes, which is about as much as one man can conceive of efficiently at one time. Each area is headed by a foreman Technician with instrument repairmen working directly under his direction in his area. This Foreman initiates a preventative maintenance program, which he carries out, and keeps records for major shutdowns. He computes orifice meter constants and oversees the records that are kept in the main shop office for his area. He has, of course, the day to day adjustments and repairs to make, and is in close contact with the operation of the units in his area at all times. The number of men assigned to his area, varies with the work load. Several of these areas have small branch shops, located in close proximity of the field of activity. These shops serve as a place to keep a few parts, and thus make for quicker service.

EQUIPMENT LAYOUT - INSTRUMENT SHOP
LOS ANGELES REFINERY



The Training Committee, as shown on the organization chart, is made up of one foreman technician and three craftsmen and is headed by the foreman of the department. This committee meets once per week. It is the function of this committee to furnish an on-the-job training program for the trainee helpers, and to issue training bulletins on new instruments as received or on new test methods as developed.

The major portion of our work is accomplished on the 8 to 4:30 shift during a five-day work week. However, we have two standby instrument men on the 4 to 12 shift seven days per week and on the 8-4:30 shift—Saturdays, Sundays, and holidays. As our organization chart shows, these men work out of the main shop and stand by for calls to any area. These men work under the work direction of the maintenance shift foreman. They rotate between the 8 to 4:30 and 4 to 12 shifts and change weekly for a period of 12 weeks. Effort is made to give them an opportunity to familiarize themselves with the problems of the various areas when they are working the 8 to 4:30 shift.

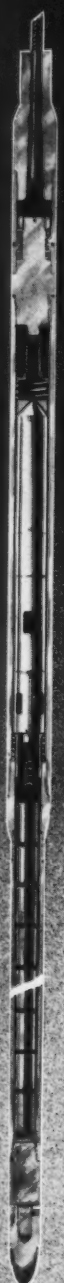
The area instrument foremen strive to have their areas running so smoothly that all instrument work will be taken care of during the day, and are proud when the standby men get no calls from their areas. However, the standby men are a very essential part of our service organization, and many times keep controls in operation, which might shut down a unit. They are assigned shop jobs, which they work on if not called to work on emergency or breakdown jobs in the refinery.

Craftsmen and helpers are assigned to the various areas, on a basis of personality, talent and ability and where they will fit into the team best. Changes are made in these assignments whenever improvements will result to the mutual advantage of all.

Facilities

Our main shop is a pleasant, airy, well lighted, clean place to work. Thanks to a progressive management we think we have one of the finest instrument shops, and some of the best facilities for training instrumentation on the coast, which you gentlemen are about to see.

I have included in this paper a plan of our shop and photographs which I believe will be self explanatory.



Half Section of Surwel Multishot Surveying Instrument

ACCURATE SURVEYS

Before Reconditioning

PAY DIVIDENDS

With current heavy demand for crude oil and high prices, now is the time to rework those old wells for increased profits! And the first step in such a program should be the accurate determination of well inclination and bottom-hole position by a complete survey.

This can be done quickly and economically with Surwel (Gyroscopic) Multishot Surveying Service which is widely used to survey both new and old, cased or open holes.

The patented Surwel Surveying Instrument provides permanent photographic records of the inclination and direction of the hole at any depth.

It is self contained, operates automatically at pre-set short time intervals both going in and coming out of the hole. Records are obtained by camera which photographs the direction of the gyroscopic indicator and the degree of inclination. The correct course of the well can be plotted from this information and the customer is furnished with the sustaining data.

A complete survey unit with trained operators is ready to serve your needs.

WRITE, WIRE OR TELEPHONE OUR
NEAREST SERVICE POINT FOR COMPLETE INFORMATION

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SPERRY-SUN

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Philadelphia, Pa. Falfurrias, Texas Odessa, Texas Marshall, Texas Long Beach, Calif. Oklahoma City, Okla.
Lafayette, La. Bakersfield, Calif. Moulden Oil Field Services, Casper, Wyo.

The arrangement of our benches has worked out very satisfactorily and separates the several classes of work into definite areas. Our parts department and tool room has helped us keep better control of our special tools and our inventory of parts. Our precision instrument room serves as a useful laboratory for special work. The water and mercury manometers are flush mounted on a panel which protrudes into the shop and allows room for the various controls and ample room for working in the rear of this test panel.

The lighting is 100 foot candle fluorescent daylight lighting throughout. Heating and ventilating is by overhead forced air.

Rough, dirty cleaning is done in a central cleaning area in close proximity to all shops.

Test equipment for checking instrument pilot valves; valve positioners; various pneumatic controller units; and electronic amplifiers and drive motors were developed at this refinery and are a part of our regular shop equipment.

Mercury is confined to one area of our shop. Dirty mercury is cleaned by an oxidation mercury cleaner vented to the outside. The final wash being a 5% solution of nitric acid.

Every effort is made to keep our benches and shop orderly and clean. Only current moving equipment to be repaired or calibrated is brought to the shop. Storage is taken care of in an area of our main warehouse. Our floor is scrubbed once per week and the shop painted once per year.

Our training facilities, which you are about to see, consist of airy class rooms, and demonstration rooms free from noise and with numerous visual aids for training. Most of these visual aids were prepared at this refinery. Practice on the adjustments of instruments takes place on an instrument board prepared for this purpose. These instruments can be put into actual operation. We have cutaway models of many instruments and working models of others which can be used at the appropriate time in class work training.

This refinery is also equipped with an excellent projection room, with several types of projectors, and a library of 16 mm. sound training films. These facilities are available to all departments within the refinery and even to interested outside technical or training groups.

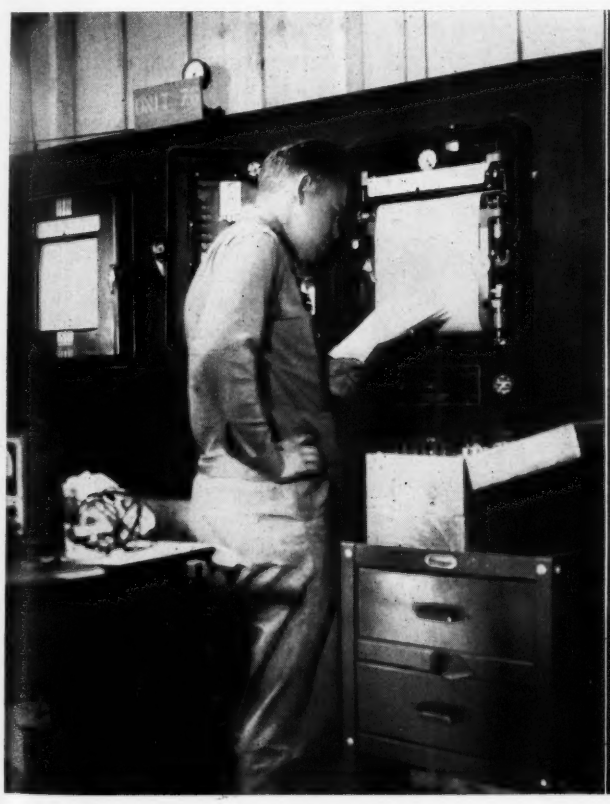
Conclusion

In past years instrumentation was often considered as a side line to some other craft, but now we see it accepted as an essential profitable part of every process controlled plant.

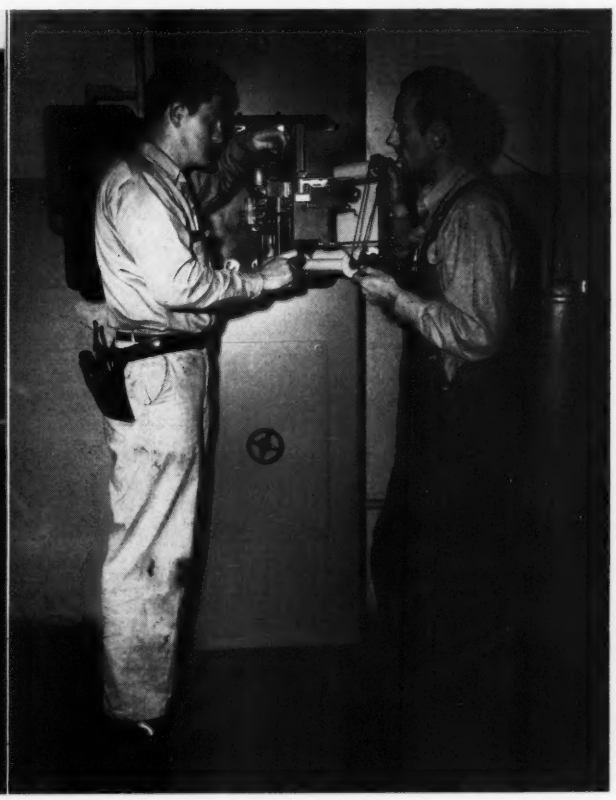
We have seen this department grow from a one-man organization servicing a hand full of meters to a department rendering service to every phase of refining, through some 7,000 instruments and 3,000 temperature measuring stations.

Many of you here have seen instrumentation pass through the pressure gauge era; the recorder era; the controller era; and now we are quickly approaching a new era called the analyzer era. This era offers great prospects and will make our work even more interesting and exciting. Many analyses are now made in the field and recorded on charts; many others are predicted.

(Continued on Page 49)



Trainees practicing instrument adjustments



An advanced trainee taking the qualification examination

Don't take a chance on after-installation failures when

THE OIL TOOL CORPORATION CAN GIVE YOU THIS

FOUR WAY

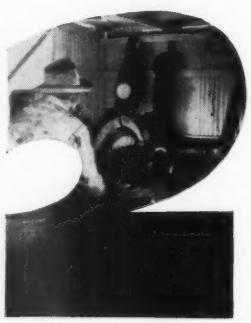
TUBULAR PROTECTION!

TO SAVE YOU TIME, TROUBLE AND MONEY, The Oil Tool Corporation offers a Pre-Installation and Test Service for all tubular goods used in oil field development work. Whatever your next tubular program calls for —casing, tubing or line pipe—The Oil Tool Corporation's *four* carefully executed inspection and test operations for every joint gives you the answer to the condition of your pipe *before* it is transported and installed.

So when next you're planning a development where good, sound pipe is essential remember that a casing, tubing or line pipe failure *after* installation can easily prove several times more costly than the charge for inspecting and servicing an entire string this easy, economical way. It's standard procedure for many majors and independents.

These FOUR steps can save you money, time and trouble...

1 Inspection of each joint of pipe . . checking and gauging *all* collars and threads to determine serviceability.



2 Cold-water pressure testing from 100 psi to 5000 psi of *all* joints, singly or in stands, to insure against thin walls, manufacturing defects or leaky collars.

3 Passing steel drift through interior surface of each joint to insure proper clearance.

4 Cleaning, doping and wrapping *all* threads against corrosion and damage.

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Petroleum Engineer Training Program

Harold S. Kelly
Phillips Petroleum Co.

The development of the graduate petroleum engineer into a well-rounded specialist is constantly scrutinized by oil companies, large and small. Some companies have systematic training programs. Others allow young engineers to develop largely by the general course taken by their activities in the office and in the field. Mr. Kelly's article is a newsworthy contribution to the problem of effective engineering personnel development.

Introduction

Industry has given increasing attention in recent years to job training. Such programs have been widely instituted in all job classifications and have demonstrated their value as a means of developing job efficiency; of introducing new and improved practices; and of giving employees an opportunity to study in preparation for greater job responsibility. The type of training that can be followed in any job depends upon the nature of the work and the general objectives of the program. For many years corporations in the oil industry have trained their engineers in some manner. In the past, engineers usually were required to come up through the "pick and shovel" route under a then widely prevailing notion that a substantial dosage of manual labor was essential in order to render an otherwise "theoretical" dreamer into a so-called "practical" man. As time went on and the petroleum industry grew to a fuller realization of the part that engineering might play in the production art, the fallacy of wasting a graduate engineer's time through too long assignment in the laboring classifications became apparent. There is no basis for the conception that the practical approach to a problem can come only from one who has had long exposure to manual labor. Any person is practical who has the ability to apply intelligence to the solution of an existing problem.

Objective of Program

The objectives of the Apprentice Engineer Training Program discussed here are to orient and launch the inexperienced technical graduate upon his career by familiarizing him with the practical operations and procedures utilized in the development and management of oil and gas properties, and to acquaint him with the working man and the nature of his duties. At the same time he remains a student for 52 weeks through attendance at engineering conferences and preparation of engineering reports.

The program is based upon the conception that petroleum engineering is comprised of a period of training in essential and fundamental engineering subjects in a university or professional school plus a period of training in industry where the engineer must learn the organizational, economic, and managerial aspects of the business as well as the type of functions to which engineering skill is applied. Further, the program is based upon the viewpoint that full professional development is a relatively slow process that consumes many years and requires a broad experience and continued study.

Advantages of a Formal Training Program

The formalized type of training program offers the following advantages to both the engineer and the employer:

1. All beginning engineers are given approximately equal initial experience which means equal opportunity to become oriented. The duration of the apprenticeship is also equal for all inexperienced men.
2. Evaluation of the trainee's future potential is based upon an appraisal by several supervisors which eliminates any misjudgment that might result from an appraisal by only one or two supervisors.
3. A limited amount of training in nearly all working classifications in development, production, and secondary recovery areas gives the engineer a balanced outlook and general knowledge that he may never otherwise obtain.
4. It conserves manpower because as much training is accomplished in one year as might be accomplished in two or three years of haphazard training. This is true even though the trainee spends as much as 40% of the training period as an observer whereas in some training programs he may spend 100% of his time in direct labor with no apparent increase in labor cost to the employer.

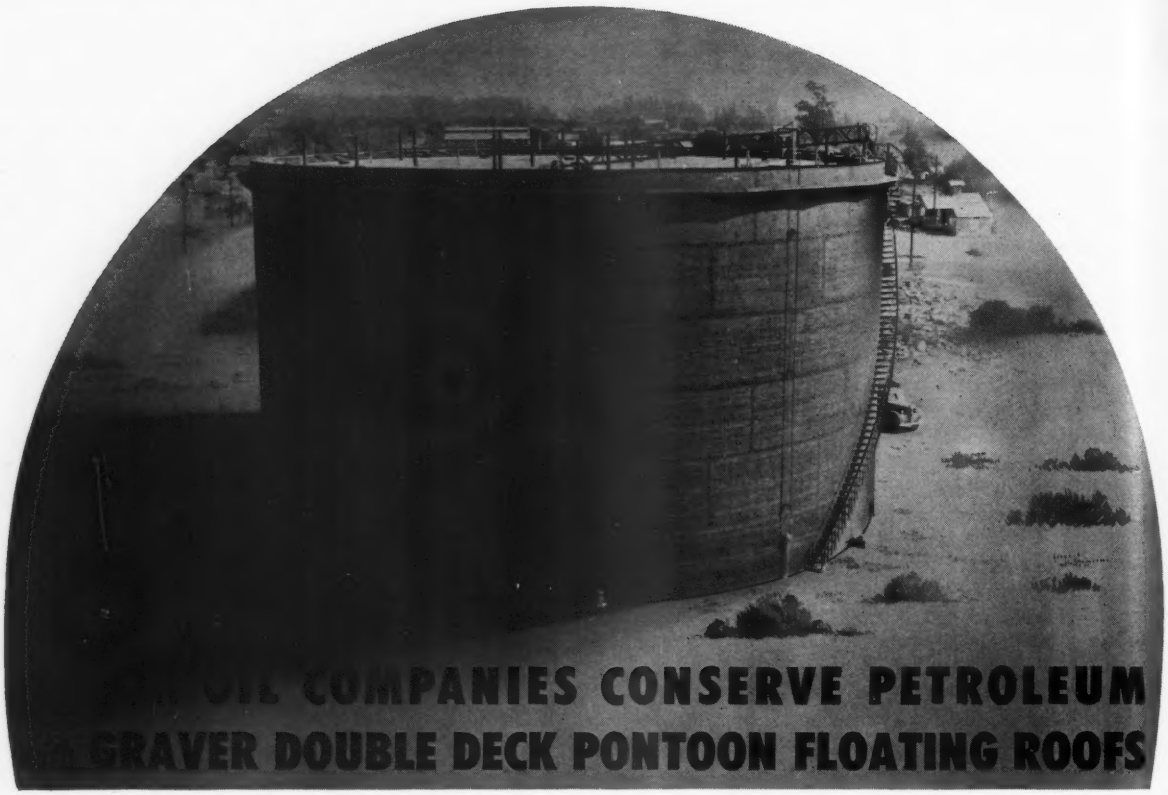
Essential Elements of the Training

The essential elements of the apprentice engineer training program are; definite job assignments covering the type, location, and duration of work in which experience is desirable; and provision for the instruction, supervision and appraisal of the trainee.

The schedule of job assignments is set up to give a broad general knowledge of the various development and operating techniques in a minimum period of time. Seldom will one district have a sufficient breadth of activities to afford experience in all types of work. Therefore, usually one assignment is made in a district having a preponderance of drilling and development activities; and a second assignment is made in a district having settled production and secondary recovery activities.

In the first training district the following work schedule is used:

Job	Number of Weeks
Maintenance Roustabout	6
Well Service Roustabout	4
Work with the Field Mechanic	2
Work with the Oil Pumper	2
Work with the Oil Treater	2
Work with the District Clerk	1
Work with the District Engineer	4
Total	21



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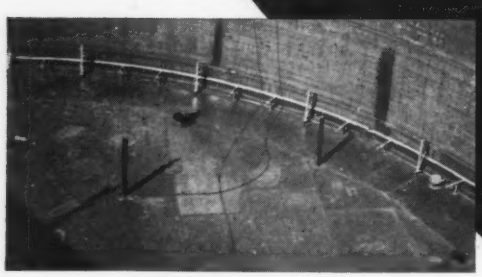
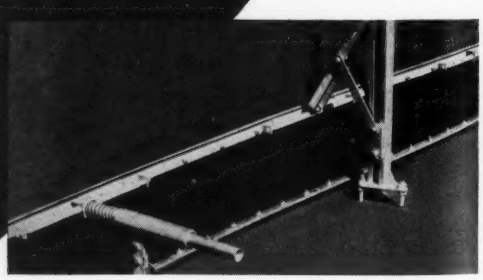


Graver alternating hanger and pusher arms maintain a positive seal.



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A similar group of jobs are assigned in the second training district with the addition of three weeks on cable tools in lieu of the two weeks with the oil treater.

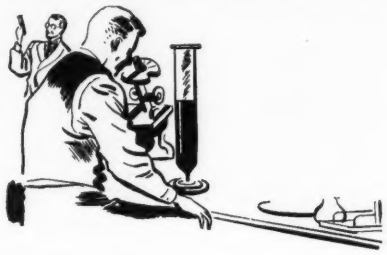
The third training assignment is for eight weeks as a roughneck on a rotary drilling rig. The final assignment consists of one week in the General Office. The job assignments outlined here encompass a total of 52 weeks. Fairly strict adherence to the schedule will prove more satisfactory to the engineer and to the employer. This permits initially furnishing each trainee and the supervisors in the training districts with a complete schedule of all assignments with their dates and location.

The District Superintendents are given the authority to make minor changes in the detailed schedule of work in order to take care of special local conditions. Some special work may come up in the district which would be educational to the trainee.

In the assignments as a Maintenance Roustabout, as a Well Service Roustabout, and as a Rotary Roughneck, the trainee can readily work as a member of the crew and thus contribute directly to the work accomplishment. In all other assignments the nature and short duration of the work makes it desirable that he work as an extra helper. As an auxiliary he does not reduce the efficiency of the regular men assigned to the job. Even though he is an extra man, the trainee is expected to participate in the work in order to learn as much as possible about it.

Full instruction, good supervision and fair appraisal of the trainee during the work assignments are essential to the success of the program. General instruction is accomplished to a great extent through a training manual placed in the hands of each new engineering graduate. Specific instructions and supervision on each job come from the immediate supervisor. Appraisal of the trainee is accomplished through verbal and written ratings by each supervisor for whom the trainee works; by sixty-day progress reports submitted by the trainee; and by a final report which is prepared by the trainee. One day per week is set aside during the four week assignments with the district engineers for preparation of the final report.

Another effective means of instructing the trainee is through weekly engineering conferences that are held in the training districts and attended by the district engineer, experienced engineers, and trainees. In addition, some specialist foremen, the oil treater and the field tester in the district may attend these conferences. Practical operating techniques, field problems, engineering methods or basic engineering principles may be discussed at these conferences. The conference is led by the man best qualified in the case of field work. The trainee may be assigned the job of leading the conference on some engineering subject which can be presented by him.



Training Manual

The apprentice engineer training manual contains the following:

1. Objective of the training program.
2. An outline of the method of supervision of the trainee and a description of the conditions of his position in each type of assignment.
3. Expenses allowed in moving and settling at a new location are definitely set out.
4. Guidance During Training.
   - A. Outline of personal conduct.
   - B. Conferences with supervisors.
   - C. Method of trainee rating or grading.
5. Description of reports to be submitted.
   - A. 60-day progress report.
   - B. Final report.
6. Schedule of Assignments.
7. Job outline or description of each type of field job.
   - A. Roustabout.
   - B. Field mechanic.
   - C. Plant operator.
   - D. Oil pumper.
   - E. Field tester.
   - F. Oil treater.
   - G. District Clerk's organization.
   - H. District Engineer's organization.
8. Bibliography of reference material.
9. Outline for self-study on production practices.
10. Questionnaire—200 practical questions on:
    - A. Reservoir engineering.
    - B. Petroleum and mechanical engineering.
    - C. Roustabout work.
    - D. Pumping—switching.
    - E. Oil treating.
    - F. Drilling — Roughnecking—Cleanout work.
    - G. General questions.
11. Job Progression Chart—(Indicates possible avenues of advancement).
12. Company Benefits.
    - A. Insurance.
    - B. Retirement Income Plan.
    - C. Unavoidable Absence Benefits.
    - D. Patents.
    - E. Suggestion Plan.
13. The Story of the Company.
14. History of the Production Department.
15. Activities of other Departments.
16. A map showing the Production Department's Division and Districts.

Conclusion

The program outlined has been in force for the past 2½ years and we find that at least two important things have been accomplished. First, we can develop as great a capacity for engineering work in the one year formal training period as can be developed in two or three years by the old methods. Second, the apprentice engineer maintains a firm grasp of his engineering fundamentals and the engineering viewpoint to the end of the training period instead of tending toward operations due to too long an exposure to purely operating jobs.

From the long term viewpoint of both the engineer and the employer, a definite training program will prove helpful and profitable.

*Presented under the title: An Apprentice Engineer Program, before the American Petroleum Institute, Division of Production, Wichita, Kansas.

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Field Development

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San Fernando Test Staked

On a 1200-acre lease in the San Fernando area, Universal Consolidated Oil Co. has staked location for Panorama No. 1 on Sec. 6-2n-15w, Los Angeles County. Nearest production is in the Aliso Canyon field, approximately six miles north and west of the test scheduled.

Olive Try Drills On

British-American Oil Prod. Co. has spudded and is drilling ahead at 305 ft. in its Mauerhan No. 1 explorer in Sec. 14-4s-10w in the Olive area, Orange County. Drill site is roughly three-quarters of a mile from the company's recent duster, Fluor No. 1. Union Oil's Olive Comm. No. 4-1 explorer on Sec. 8-4s-9w is drilling at 401 ft.

Cajon Pass Try Started

Cellar is in for Ray No. 1 owned by Cajon Oil Co., Ltd., in the Cajon Pass area in Sec. 36-3n-6w, San Bernardino County. In the Chino area, Hancock Oil Co. of California is planning to drill Abacherli No. 1 on Sec. 12-3s-8w. Grayco Oil Co. is rigging Grayco No. 2 on Sec. 13-3s-18w. Chino Hills Oil's Chino Hills No. KB-4 on Sec. 33-2s-8w is bailing, after gun perforating 140 ft. of zone at intervals. Total depth is 2056 ft. San Bernardino County prospects are attracting added interest as the statewide search for new sources of supplies continues to expand.

West Newport Well On Pump

Macoil Corp.'s Banning No. 303 on Sec. 29-6s-10w on the bluff near the radar station at West Newport has been put on the pump for an initial yield of wash water. Total depth is 1944 ft., with casing set at 1610 ft. The well may be plugged back for a test of an upper zone, according to field men. Habco Oil Co.'s Jefferson No. 1 wildcat on Sec. 21-6s-10w is drilling at 315 ft.

Puente Try Idle

Idle at 2255 ft. continues as the operational stage of Louis H. Didier's Wilson Ranch-Didier No. 1 prospect job on Sec. 19-2s-9w near Puente. Total depth is 2255 ft., with signs pointing to possible abandonment in the near future.

Long Beach Test Rigging

Rig is going up for General Petroleum's Los Cerritos No. 1 at Long Beach on Sec. 13-4s-13w. Deep production will be sought.

Seal Beach Try Working

Formation tests are under way in

At the Long Beach Oil Development Corp.'s well No. X-76 at Long Beach, A. G. McHale Drilling Co., contractor. Rear row, left to right: Gene Francis, cathead; Ray M. Elliott, driller; K. E. Stussy, derrick; front row, left to right: E. B. Chumbley, pipe racker; Pete Lockhart, lead tong.

Marine Exploration's State No. 2 on Sec. 11-5s-12w, which is bottomed under the ocean floor some distance from the shoreline at a depth of 11,900 ft.

Del Valle Try Rigs Pump

Standard is preparing to pump its Sepulveda No. 13 on Sec. 8-4n-17w in the Del Valle area. Plugged depth is 3612 ft., with 7-in. casing set at 2990 ft. Original bottom was 3861 ft. Frew No. 1-6 on Sec. 29-3n-16w in the Aliso Canyon area is a rig. At Inglewood, Stocker No. 12 on Sec. 16-2s-14w is drilling on down at 2080 ft. L. A. I. No. 4-1 on Sec. 20-2s-14w is making hole at 7909 ft. Rig is up for Del Amo No. 1 at Dominguez on Sec. 8-4s-13w.

Placerita Canyon Venture Completed

Placerita Canyon is the scene of two new producing wells. Parbe Oil Co.'s Philbert Comm. No. 3-1 on Sec. 31-4n-15w was completed at 1205 ft. for 36 barrels of 15.6 gravity crude a day, cutting two per cent. Indian Oil Co.'s gave the final touches to Wanda-Kraft No. 2 on the section at 840 ft. for a yield of 30 barrels of 15.7 gravity oil, with a cut of one-tenth of one per cent. The company's No. 1 is bailing at 865 ft. Nelson-Phillips Oil Co. is rigging to pump from 815 ft. its Kraft No. 4 on Sec. 31-4n-15w.

Orange County Test Drilling

In the Silverado Canyon area, North Star Mining & Dev. Co. is prospecting ahead at 422 ft. in North Star-Johnson No. 1 wildcat on Sec. 8-5s-7w, Orange County.

Castaic Test Digs

Drilling at last reports was going ahead at 3015 ft. in L. R. Wilhite and Claude Kavanaugh's Wilhite-Jenkins No. 1 try on Sec. 18-5n-16w in the Castaic area. Humble Oil & Refining's L. A. Honor Farm No. 1 wildcat on Sec. 1-4n-17w is still only a location.

Whittier Well Drills

Union Oil and Fullerton Oil, which banded together to drill a wildcat in the Whittier area, have carried their Mineral Springs test there to 3075 ft. and are continuing to drill ahead. The well is located on Sec. 25-2s-11w.

Orange County Tests Interesting

One of the most closely watched wildcats in Orange County is Standard's Lomita Land and Water Co. No. 3-1 on Sec. 10-5s-11w at Sunset Beach. The hole is down 11,334 ft. and is cleaning out, after packer failure on formation trial. Turley No. 1, a wildcat in the Fairview area on Sec. 4-6s-10w, is a foundation.

Newhall Try Idle

Newhall Comm. No. 3-1, a test well undertaken by R. W. Sherman on Sec. 2-3n-16w near Newhall, is idle at a depth of 3075 ft. M. G. N. Oil Co.'s Shepard No. 5 on Sec. 1-3n-16w is a location.

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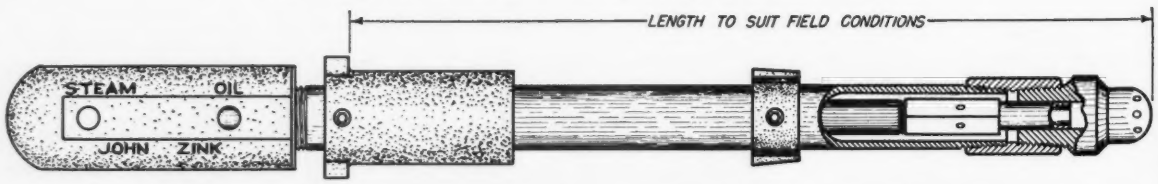

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San Joaquin Valley

Russell Ranch Wells Come In

The Russell Ranch oil field continues to chalk up excellent producing wells for Richfield Oil Corp. F. R. Anderson No. 16-30 on Sec. 30-11n-27w was completed flowing at the rate of 3000 barrels a day from a total depth of 3000 ft. No. 17-30 on the section was finished at 2950 ft. flowing 3700 barrels daily. No. 27-30 was completed at 3125 ft. flowing at an unestimated rate and has been shut in. Location is made for No. 28-30, some 4950 ft. south and 990 ft. east from the northwest corner of Sec. 30-11n-27w. Richfield's F. R. Anderson No. 75-25 on Sec. 25-11n-28w is coring at 3285 ft., after cementing 7-in. casing at 3235 ft. Quality No. 41-31 on Sec. 31-11n-28w is idle at a depth of 1091 ft. F. K. Perkins No. 1 on Sec. 27-10n-26w is also idle at 4973 ft. Russell A No. 42-5 on Sec. 5-10n-27w is engaged in cleanout operations. Present depth is 3123 ft.

On Sec. 19-10n-27w, A. A. Cameron's Hazel T. Leingang No. 1 is prospecting ahead at 3110 ft. The project was formerly known as Triplett No. 25-19. Coast Exploration Co.'s Coast-Colgrove-Travers-Parsons No. 1 is making hole on down at 2242 ft. on Sec. 33-11n-27w. Idle at 600 ft. is the current status of Producers Oil Corp.'s Hinsdale No. 34-18 on Sec. 18-10n-27w. Wood-Callahan has made location for No. 1 on Sec. 25-11n-28w and Elmer C. von Glahn and George Leingang have staked Hill No. 1 on Sec. 28-10n-27w.

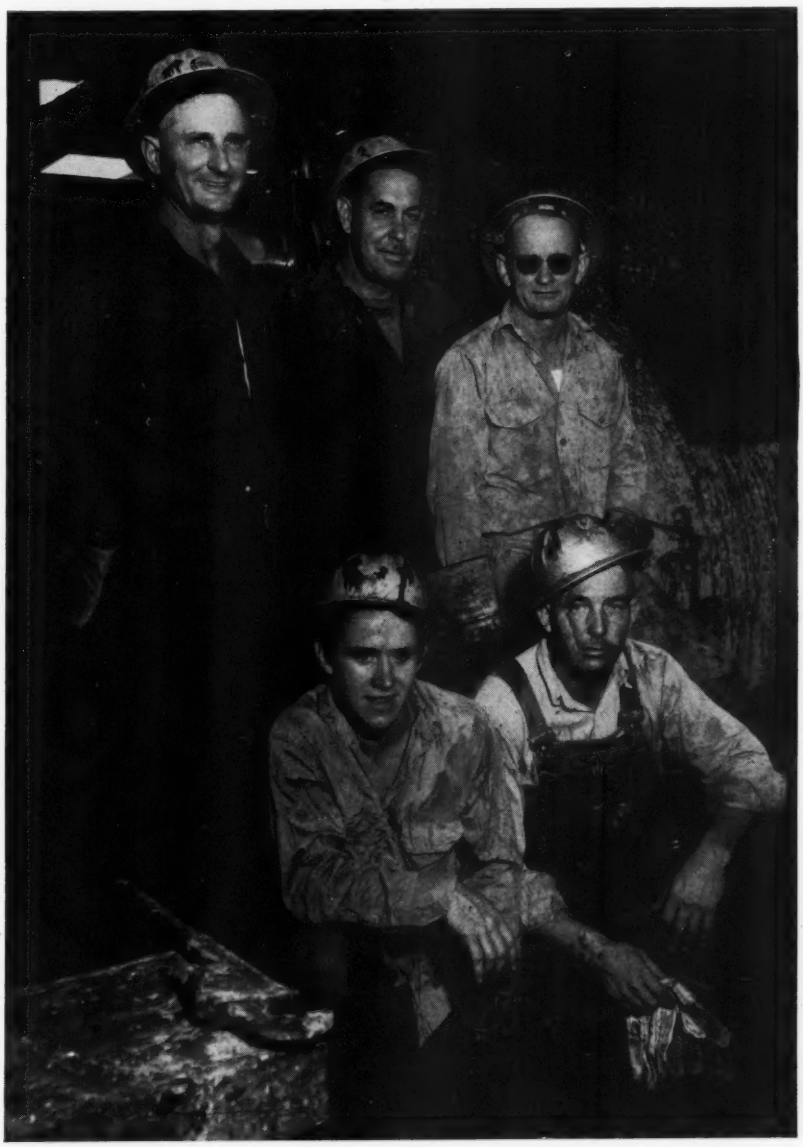
Jasmine Try Starts

In the South Jasmine area on Sec. 32-25s-27e, British-American Oil Prod. Co. is starting Davis No. 36. Location is some distance from the Pacific Oil & Gas Co. producers. The USL No. 33-28 on Sec. 28-27s-19e in the Williams area has been given up at 2722 ft. in gray sand.

Fresno County Discovery Scene

Barnsdall Oil Co. evidently has uncovered a new and important source of oil in the Guijarral Hills, midway between fields at Kettleman Hills North and Pleasant Valley in southwest Fresno County. The discovery was scored through the medium of the company's Fred J. Smith No. 1 test on Sec. 34-20s-16e, eight miles due east of Coalinga. A formation test, conducted with packer at 8700 ft. and bottom of the hole at 8730 ft., is reported to have shown a flow of 33.6 gravity oil at the rate of 5300 barrels daily. Tester was open 18 minutes and gas surfaced in 11 minutes. A 3/8-in. bean and a 450-ft. mud cushion were used. Leda oil sand was logged from 8658 to 8730 ft., a zone below the Vaqueros and a probable pinch-out absent at Coalinga Nose and Pleasant Valley.

Barnsdall has close to 2000 acres surrounding the new oil finder. Standard of California owns sec-



At Long Beach, A. G. McHale Drilling Co., contractor on the Long Beach Oil Development Corp.'s well No. X-62. Rear row, left to right: T. E. McKinney, cathead; W. H. Pearson, driller; I. B. Ruth, pipe racker; front row, left to right: C. R. McHale, lead tong; L. W. Underwood, derrick.

tions in fee and some 300 acres are held by a combination of interests made up of Seaboard, Honolulu and Robert S. Lytle of the Doheny interests. Barnsdall's last previous discovery was the Aliso Canyon field in 1936.

Hondo Creek Wildcat Digs

Near Hondo Creek, Crome Oil Co. is drilling at 4405 ft. in Snyder No. 1 wildcat on Sec. 35-16s-14e, Fresno County.

San Emigdio Test Rigging

Anderson & Associates is grading ground for Klipstein No. 52-18, a test on Sec. 18-10n-23w in the San Emigdio area. No. 1 remains idle at 1843 ft. Los Lobos No. 5, sponsored by Apex Petroleum Corp., Ltd., on Sec. 5-10n-22w, also is idle at a plugged depth of 1365 ft. The hole was carried first to an original bottom of 1825 ft. Blue Ridge Oil's Blue Ridge No. 1 on Sec. 14-10n-23w is still inactive at 500 ft.

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Devils Den Try Hits Sand

Gilliland Oil Co. at last reports was in oil sand at 501 ft. with Alferitz No. 4 on Sec. 14-25s-18e at Devils Den in Kern County. The test encountered top oil sand at 441 ft. Aferitz No. 2 is a location on the section. Miller-Bump No. 3 is a location on Sec. 11-25s-18e. International Exploration's No. 1 on Sec. 15-25s-18e is changing equipment with hole bottomed presently at 1770 ft.

Arvin Tests Uncover Oil

British-American Oil Prod. Co. and Capital Co. have completed two more wells in the Arvin area. They were Arvin A No. 36-26 and Hansen No. 57A-26 tests on Sec. 26-31s-29e. The former started off from 7442 ft. flowing 102 barrels of 38.4 gravity oil daily through a 11/64-in. bean, along with 59,000 cubic ft. of gas. Initial yield of the latter was 207 barrels of 35.4 gravity oil daily and 670,000 cubic ft. of gas from 7325 ft. A 12/64-in. choke was used. Bolsa Chica Oil Corp. is drilling at 2110 ft. in USL No. 33-28 on Sec. 4-31s-29e. On Sec. 26-31s-29e, Honolulu Oil Corp. is milling on packer in Borden Comm. No. 1 try. Present depth is 7198 ft.

Kern River Adds Well

Cleveland Oil Co.'s initial completion on its David lease in the Kern River field has been completed at 1112 ft. It was finished for a yield of 49 barrels of 13 gravity oil daily, cutting 5 per cent. Casing is cemented at 989 ft. Drill site is in Sec. 26-28s-27e. Ray Frampton has abandoned his No. 7 on Sec. 27-28s-28e at an unproductive depth of 1607 ft.

Terra Bella Wildcat Digs

Wildcat drilling operations of Hudson Oil Co., Inc. with Hudson-Fay No. 1 on Sec. 24-22s-27e near Terra Bella in Tulare County have reached a depth of 847 ft. Prospecting is being continued ahead.

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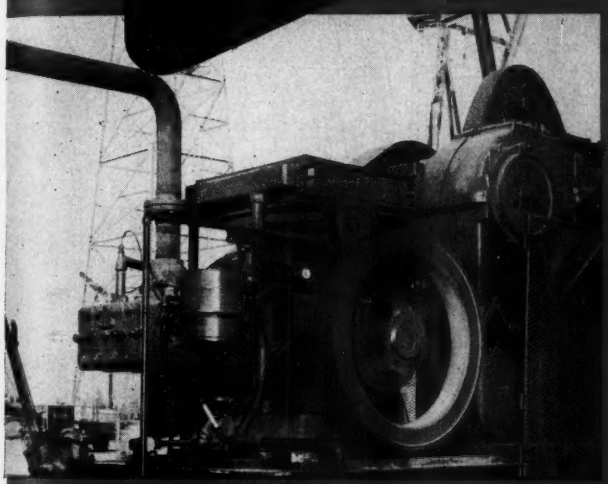

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Kettleman Hills Test Setting Pipe

Middle Dome Corp.-California Standard and Bolsa Chica-is ready to run protection string in its No. 52-30V test on Sec. 30-23s-19e on Kettleman Hills Middle Dome. Pipe was cemented on present bottom at 5350 ft.

Buena Vista Try Drilling

Western Gulf at last reports was drilling hard shale at 12,772 ft. in BVA No. 18-3 test on Sec. 3-32s-25e in the Buena Vista area. BAC-US No. 1 on Sec. 8-31s-21e is a location in the Panorama Hills area of San Luis Obispo County.

Rosedale Try Fails

Efforts of Continental Oil Co. to open up new production in the Rosedale area in Kern County were without avail. The well, KCL No. P-1 on Sec. 11-29s-26e, explored to a bottom of 9788 ft. in gray sand. The Rio Bravo was topped at approximately 9696 ft. and the Vedder at about 9745 ft.

McKittrick Wildcat Quits

General Petroleum Corp. has filed an abandonment on its Ninkovitch No. 62-9 on Sec. 9-30s-21e wildcat west of McKittrick. Drilling commenced almost a year ago in the project, which successfully finished a number of fishing jobs in carrying out a thorough test at location. Total depth is 11,283 ft., with casing set at 10,087 ft. Phacoides was topped at 9580 ft., Oceanic at 10,052 ft. and Point of Rocks at 10,585 ft.

Pacific Western is coring at 2425 ft. with Lucas No. 22 try on Sec. 29-30s-22e. The No. 21 on the section is idle at 660 ft. Signal Oil & Gas Co.'s Signal-Poke No. 1 on Sec. 10-30s-22e is rigging to pump from a plugged depth of 5871 ft. Swabbing failed to induce natural flow. Original bottom is 7505 ft. No. 2 is an abandonment at 6246 ft.

Lerdo Try Drills On

Morton & Sons is drilling below 2300 ft. in Lerdo Comm. No. 1-5 wildcat on Sec. 25-28s-26e in the Lerdo area of Kern County. Etchegoin clay was encountered at 3650 ft. At East Edison, Tejon Ranch No. 15-1 on Sec. 15-30s-30e is still idle at 6090 ft.

Kettleman Hills Wildcat Fishing

Fishing operations still hold the attention of Standard of California's S.F. & F.L. No. 4-2 explorer on Sec. 12-25s-19e in the South Dome of Kettleman Hills. Present depth is 12,922 ft., with top of fish at 12,000 ft. KCL No. 12-21 on Sec. 7-29s-26e is making hole below 9600 ft. Van Sicklen No. 45, a wildcat at Lost Hills, is trying to regain circulation. Drill site in on Sec. 36-27s-21e and the hole so far is 10,270 ft. deep.

Mountain View Project Starts

Guy Cherry, Jr., is starting Mountain View No. 1, some 380 ft. north and a like distance east from the west quarter corner of the southeast quarter of Sec. 29-30s-29e.

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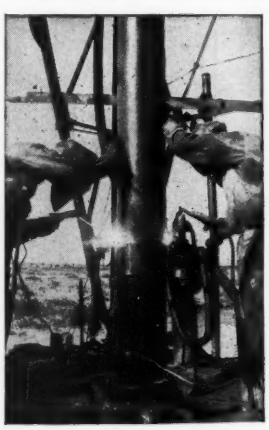

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San Ardo Test Hits Shallow Oil

Of particular interest in the Coastal area is Cleveland Oil and Barnsdall Oil's Ansberry No. 1 wildcat, seven miles northwest of Jergins-North American wells, which are situated about three miles south of San Ardo. The test, on Sec. 2-22s-9e on a 1500-acre lease held jointly by Cleveland and Barnsdall, cored a shallow oil sand from 818 to 848 ft. The zone will remain untried until a look is taken of the deeper formations. Coring is now being conducted through shale at 1150 ft., with another sand anticipated within the next 100 ft.

The Jergins-North American combination has brought to successful conclusion its Ferrini No. 70-11 on Sec. 11-23s-10e. The well came in from 2150 ft. for a yield of 125 barrels of 11.2 gravity oil a day, cutting slightly. No. 95-11 is in the completion stage at 2188 ft. No. 63-11 has reached a depth of 2180 ft. and is running casing.

In the Peachtree Bow sector of Salinas Valley, Monterey County, Texas Co. has staked Ringaman No. 1 test on Sec. 26-20s-11e. Also in the valley, Texaco is drilling Beedy No. 1 on Sec. 33-19s-7e at 485 ft. under the handicap of only partial circulation. Rosenberg No. 1 on Sec. 34-22s-10e is a new completion at a plugged depth of 2150 ft. Initial output was 15 barrels a day, cutting 11 per cent. The well is shut in. Biaggi No. 2 on Sec. 12-22s-9e likewise is shut in at 1159 ft. In the Bradley area, Monterey County, Barnsdall is spot coring in oil stained shale at 4055 ft. with its R & W No. 1 wildcat on Sec. 21-23s-12e.

Santa Barbara Well Drilling

On the Low tract a short distance from the breakers in the Santa Barbara Mesa area, Trans-Oceanic Oil Co. is drilling at 2701 ft. in its M'Divani No. 8. Located on Sec. 28-4n-17w, the project is undsrstood to be designed to look at the lower formations. Field men reported the well found shallow showings in the Vaqueros around 1175 ft.

Santa Rosa Island Wildcatting Begins

Signal Oil & Gas in company with Honolulu Oil are engaged in work preliminary to test drilling on Santa Rosa Island in Santa Barbara channel off the Elwood field. The island has long held the favorable regard of some geologists. An exploratory hole drilled years ago was credited with showings of the subcommercial variety.

Topa Topa Try Drills

In the Topa Topa Anticline area, Union Oil is prospecting below 950 ft. with Tar Creek No. 40 test on Sec. 28-5n-19w, Ventura County. Union Fugler No. A-1 on Sec. 35-10n-33w at Bradley Canyon in Santa Barbara County is making progress with the drill at 2063 ft. First

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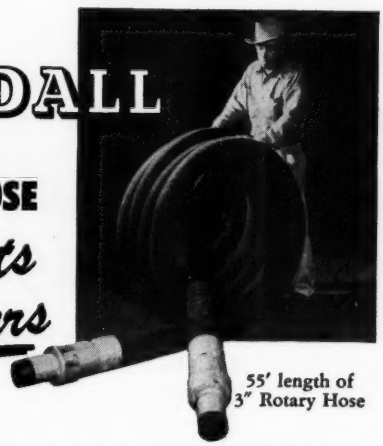

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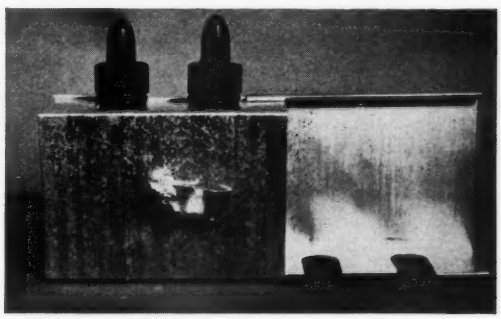

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National Bank No. 1 on Sec. 19-9n-32w at Olivera Canyon is drilling deeper at 5000 ft. Jesus Maria No. 1 wildcat on Sec. 34-8n-35w is reported producing water at the rate of 549 barrels a day from 2274 ft.

Montalvo Test Reams

Standard of California's McGrath No. 42-6 on Sec. 25-2n-23w at Montalvo has reached the 9750-ft. level and is reaming. No. 82-5 on the section is coring at 10,290 ft. McGrath No. 102-7 is grading. Ventura County Mortgage No. 59-1 on Sec. 24-2n-23w is rigging. North of Montalvo, Superior Oil is drilling at 1786 ft. in Limoneira on Sec. 9-2n-22w.

Summerland Try Reaming

Standard of California's interesting test in the old Summerland area along the ocean front in Santa Barbara County is reaming. Known as Williams No. 1, the well on formation trial of the interval of 3030-3080 ft. blew gas at the estimated rate of 2,500,000 cubic ft. daily. Blow on test from 3080 to 3100 ft. was estimated as 3,000,000 cubic ft. a day. Present depth is 3100 ft. Summerland was once the scene of many producing wells, which through the years have been abandoned as yield dwindled to a point below sound economy. Standard is understood planning to test the area deeper than previous wells.

Capitan Try Listed

Rothschild Oil Co. is starting another drilling job in the Capitan area. It is Careaga No. 2 on Sec. 36-5n-31w.

Contra Costa Wildcat Isle

Standard of California's Fernandez Comm. No. 1 wildcat on Sec. 21-2n-3w in the Crockett area in Contra Costa County is idle temporarily at 500 ft. Location falls 2000 ft. south and 1635 ft. east of the southeast corner of the California and Hawaiian Sugar Co. property.

Ripon Test Programmed

Philbrich No. 64-7 wildcat is

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ready to start work on Sec. 7-3s-8e in the Ripon area of Stanislaus County under the sponsorship of Tide Water Associated Oil Co.

Eureka
Try Digs

Salmon Creek Oil & Gas Co.'s No. 1 gas test on Sec. 15-3n-1w in the Eureka area, Humboldt County, is drilling at 1275 ft. Location is north of production previously developed by Texas Co.

Willows
Try Idle

Drilling operations have been suspended at 2172 ft. in Shell Oil's try for gas with James No. 1 on Sec. 1-19n-5w in the Willows area, Glenn County.

Los Alamos
Test Deeper

Drilling is proceeding below 7350 ft. in Amerada Petroleum's Tognazzini No. 1 test on Sec. 14-8n-33w in the Los Alamos area.

Parkfield
Try Works

At Parkfield in Monterey County, J. B. Peak has reached a depth approximating 2500 ft. in Colegrove-Taylor No. 83-22 on Sec. 22-23s-14e. The venture is in the no dope category.

Arroyo Grande
Try Recementing

Bishop Oil Co. is ready to recement the 8⅝-in. pipe at 1140 ft. in its Maino No. 6 in Sec. 31-31s-13e in the Arroyo Grande area, San Luis Obispo County.

Moor Park
Try Casing

Casing is ready to run in Engineers Syndicate's Strathearn-Coleman No. 1 wildcat on Sec. 12-2n-19w in the Moor Park area, 20 miles northwest of Los Angeles.

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D. H. BURDEN
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DRILLING CONTRACTORS

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Goleta
Try Digs

Drilling is going forward steadily at 1210 ft. in Honolulu Oil's Honolulu-Signal-Macco State No. 309-3 on Sec. 19-4n-28w near Goleta in Santa Barbara County.

San Marcos
Test Coring

Fred M. Manning, head of Coastal Drilling Co., large California and Rocky Mountain contract drilling organization, is spot coring at 4675 ft. with Lazy R. G. No. 1 on Sec. 24-6n-29w in the San Marcos area.

Hopper Canyon
Wildcat Drills

The hole has been carried to 1855 ft. by Richard and Rowans with Cosby No. 1 on Sec. 14-4n-19w at Hopper Canyon in Ventura County.

LOS ANGELES BASIN

Antelope Valley
Wildcat Reaming

With the hole at the present depth of 598 ft., Orlando Oil Corp. is reported reaming with its Orlando No. 1 exploratory venture on Sec. 32-5n-10w in the Antelope Valley area of Los Angeles County.

Montebello
Try Pumping

The West Montebello try of Rothschild Oil Co. on Sec. 2-2s-12w is pumping to sump from a plugged depth of 2720 ft. Yield is unestimated. The well, known as Wheeler No. 2, drilled to a total depth of 2940 ft. before plugging back. Wheeler No. 3 on the section is running surface pipe to a point near present bottom at 500 ft.

Brea Test
Cores Ahead

Pacific Western Oil Corp. is coring ahead below 7900 ft. with Brea Comm. No. 2-1 on Sec. 11-3s-10w in the Brea area, Orange County. The company's Howard Park Comm. No. 1, a test on Sec. 12-3s-14w in the Northwest Athens area is digging deeper at 9186 ft.

Progress is the American Way of life. The petroleum industry IS progressive.

Personalities IN THE NEWS

Shira Promoted to Assistant Export Manager

J. C. Ballagh, Vice President of Byron Jackson Co., and General Manager of Patterson-Ballagh Division, recently announced the promotion of R. W. (Bob) Shira to Assistant Export Manager, under Earl Rees, Export Manager.

R. W. Shira

Bob was formerly in the Service Division at Patterson-Ballagh, later becoming Advertising Manager, in which capacity he served for over a year. He then stepped into the California Sales Division in the Los Angeles Basin, where he was active until his recent promotion to Assistant Export Manager.

Fred W. Ayers, Senior Vice President and Managing Director of Hughes Tool Company, announced the naming of Harry E. Rogers, Vice President, as a member of the Board of Directors of the company. Mr. Rogers has been with Hughes since 1945, since which time he has been promoted from Manager of Production to Vice President in charge of Manufacturing.

New District Manager for Security in Western Canada

Mr. R. M. (Bob) Cook, Vice-President in Charge of Sales at Security Engineering Co., Inc., Whittier, California, announces the transfer of Mr. Arthur Nelson to Edmonton, Alberta, Canada, where he will serve as district manager in that area. Mr. Nelson was formerly sales and service representative at the Security Branch Office in Ventura, California.

George H. Christen, well known to the western oil industry as a result of his years of activities, has resigned as Pacific Coast Manager of Crosby Steam Gage & Valve Co., to join the staff of the W. M. Barnes Company, engineers and contractors of Los Angeles.

George will continue his activities with the Pacific Coast Gas Association, California Natural Gasoline Association, and the Southern California Meter Association, where he has been an active member for over 16 years.

Harry C. Wiess, 61, for 11 years president of Humble Oil and Refining Co., died at his Houston residence. He was a founder of the company.

Jay Hill, widely known in California oil circles, is superintendent for Salmon Creek Oil and Gas Co., sponsor of an interesting gas test at Eureka.

H. E. (High) Winters, supervisor of drilling contracts for Union Oil, was the featured speaker at the AIME meeting of the junior section of the Pacific petroleum chapter of the organization. The gathering was held at the Rio Hondo Country Club at Downey. Winter discussed in detail all phases of contract drilling.

M. O. Johnston Makes Business Trip to Texas

M. O. Johnston, President of the Johnston Oil Field Service Corporations and The Johnston Enterprises, recently made a business trip by plane from the company's Los Angeles plant to various points in Texas. At Longview he conferred with his partner in The Johnston Enterprises, E. C. Johnston, about Hydra-Line developments.

"M. O." field tested new equipment and spent some time with Manager Bill Taylor of The Johnston Oil Field Service Corporation at their Houston headquarters relative to Formation Testing and "Shoot-N-Test" matters.

Julius Fried, official of Tejon Hills Oil Co., is the same Julius Fried, who was a member of a group of four men owning originally the lease on which the great Lakeview No. 1 gusher was located. His associates at that time were Charles W. Off, Parker Barrett and John M. Dunn. All that remains now of the famed gusher is a shallow pit. It is passed over every day by persons travelling the old Taft-Maricopa road. Fried's Tejon Hills organization two months ago uncovered surprising production at shallow depth in an area near Comanche Point.

B. E. Hull of San Francisco, president of Trans-Arabian Pipe Line Co., has made known that the ultimate capacity of the Trans-Arabian pipeline can be increased 500,000 barrels of oil daily by addition of six auxiliary pump stations. These added pump stations will bolster Tapline's initial half dozen pump station project.

E. V. ABBOTT—Manager of Coast District for Howard Supply Company.

Recently promoted to the position of Coast District Manager for Howard Supply, E. V. Abbott has an extensive background in the petroleum industry. After graduating from the University of Southern California in 1937, he accepted a position as production department trainee with the Shell Oil Company, in which capacity he served for two years. He later was field representative in the Bakersfield area for the Hughes Tool Company. Abbott served in the Navy for four years and was discharged in 1946 with the rank of Senior Lieutenant. Since that time he has been a field representative for Howard Supply Company in the Bakersfield and Ventura areas.

Wild Ducks "Take Over" Oil Men's Cattle Ranch

Our friends, Cy Bell, Earl Gilmore and Bob Gilbert, have a 7000-acre cattle ranch near Tulare Lake, Fresno County.

It seems that in the course of their cattle operations they keep about 2000 acres of the place flooded with water from a number of shallow wells, and grow green feed during the summer months. Due to the lack of rainfall this season, Tulare Lake has dried up completely and the early flights of migrating ducks finding the lake dry are settling on this cattle ranch in such numbers that Fish and Game experts recently estimated there were 150,000 ducks on the place.

The owners have men now putting in blinds and will turn it into a Duck Club, and some lucky duck hunters will get some great shooting due to this unusual situation.

Application for membership may be addressed to any one of the three owners.

Alexander Melamid, a member of the Raffinarie Belge de Petroles, S. A., Antwerp, Belgium, and associated with Melanol Corp. of New York City, was a recent California visitor.

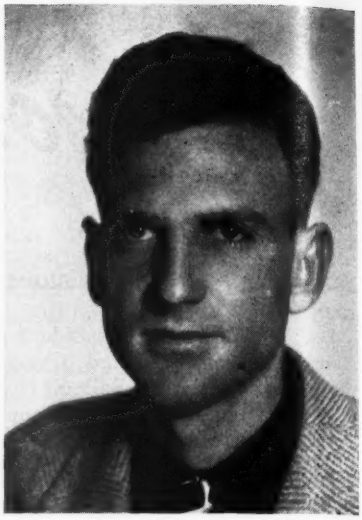
Clarence S. Beesemyer has been chosen general chairman of the civic observation of the 60th anniversary October 15 of the Los Angeles Chamber of Commerce. Beesemyer, a past Chamber president and now treasurer, is executive vice president of General Petroleum Corp. Seven sub-committees have been set up by Beesemyer to handle advertising, display work and publicity.

John B. Kennedy, 60, Hollywood oil man, died at Rio de Janeiro, Brazil. Associated with Reading Oil Corp., Kennedy was on a tour of South America at the time of his death.

Frank Vessels, Jr., widely known producer and oil field supply man of Signal Hill, has been named president of the Signal Aviation Corp. Vessels, who is vice president of the Offco Construction Co., announced that Signal Aviation is a new concern and that headquarters will be maintained at 2209 East Spring Street at Signal Hill. Robert Green is vice president of the company and John D. McIntire, secretary-treasurer. Signal Aviation plans to serve oil companies particularly and supply their needs for executive transportation.

One of the country's foremost petroleum geologists, Leo Ranney of New York, was a recent visitor in Los Angeles and other Pacific Coast points. He is the originator of a method of conserving water, which grew out of his studies as an oil geologist. He pointed out that Los Angeles could obtain a vast amount of water in the San Fernando Valley by radial wells and additional water could be obtained by boring horizontal wells into the mountains back of the city.

I. A. McAninch, a veteran of 22 years service with General Petroleum's comptroller department, was named president of Toastmasters International at the annual conclave of the organization at San Francisco.



T. L. BOYD—Recently made District Manager of the Los Angeles Basin district for Howard Supply Company.

The new district manager of the Los Angeles Basin for Howard Supply is a man who has seen extensive service in the industry. T. L. Boyd spent seven years in the employ of the E. C. Emmons Supply Company, Taft, California, engaged in various types of oilfield equipment work. He later was with E. A. Bender Drilling Company, prior to his enlistment in the Navy in 1943. While in the Navy, Boyd did Diesel engine work and spent part of his 2½ years of service as instructor in Navy schools. He saw service in the Philippines. Employed by Howard Supply Company at their Taft and Bakersfield stores since his discharge, Boyd was promoted to his new post on July 15, 1948.

For his quick action and presence of mind in the hazardous task of moving Union Oil's tanker, L. P. St. Clair, from the path of impending disaster, First mate William H. Thompson was named as one of 12 individuals in the United States during 1947 to merit the Bureau of Mines' Joseph A. Holmes award. Letters of commendation were presented to the company's chief engineer, F. H. Howell; first pumpman, Marion Plummer; and Fred Waite, W. E. Merrill, Dave Allison, Mack Walker, John McCoy, William Brown, Clifford Layton and Stanley Hables. All were members of the crew.

W. J. (Swede) Larson, who recently formed a new drilling organization, maintains headquarters in the Bankers Building at Los Angeles. Larson is familiarly known in all producing areas throughout the state.

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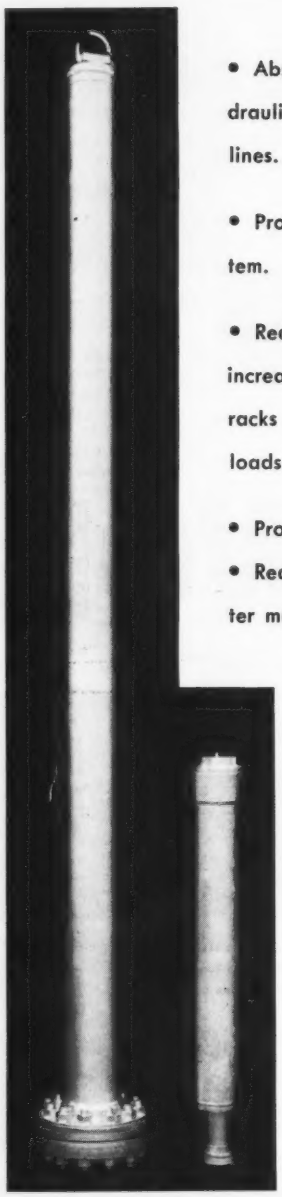

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Columbia Opens New Mill

Formal opening of Columbia Steel Company's new Steel Sheet and Tin Plate Mill at the Company's Pittsburg, California, Plant will be marked by a dedication ceremony on Thursday, October 21, and an Open House on the following day, it was announced by J. Lester Perry, President of this Western subsidiary of United States Steel Corporation.

Completion and operation of this new multi-million dollar mill is one of the most important industrial developments in the West since the end of World War II. The Mill will supply tin plate to the great Western canning industry and sheets to Western manufacturers of a wide range of products.

Mr. Perry revealed that a distinguished list of national, state, county and municipal officials, leading industrial and business executives, educators, and prominent civic and community leaders will be invited to the dedication of the new Mill. Guests will inspect production facilities and then be served a lunch in the new Mill.

On the following day, the entire Pittsburg Plant, rated one of the most diversified steel mills in the country, will be the scene of an Open House at which Plant gates will be thrown open to the general public. Families of employees and Columbia's community neighbors will have the opportunity of visiting the facilities, including the new Sheet and Tin Plate Mill.

Improvement and development work at Columbia's Pittsburg Plant was started shortly after the War ended and is an important part of United States Steel Corporation's over-all post-war development and expansion program now being carried out in various parts of the country at an aggregate cost of more than $800,000,000.

The new Cold-Reduction Sheet and Tin Plate Mill occupies about 24½ acres of the Plant's 400 acres, and is credited with being one of the most modern mills of its type in the world. Steel will speed through its giant rolls at 4000 feet per minute to meet the growing demands of the new industrial West.

Instrument Department Union Oil Company

(Continued from Page 29)

Devices for the measurement and control of purity and quality of products will be directly incorporated in processes. These devices will undoubtedly come under the supervision of instrument departments.

The present challenge to all instrument men and all instrument departments is to keep up with this progress. A continuous training program and closer cooperation with operations and process are essential. I am convinced that with the fine interest shown in the past, and the high calibre of persons that select this work, the profession of instrumentation will always keep ahead of its current needs and that instrument manufacturers and instrument users will be among the first to make use of new discoveries for the mutual benefit of everyone concerned.

Ciervo Test Pumping Oil

Texas Co.'s Ashurst NCT One No. 1 on Sec. 27-16s-11e in the Ciervo sector of San Benito County has been completed on the pump for a yield last reported of 3 barrels of 15.3 gravity oil daily, cutting three per cent. Total depth is 1688 ft., with plug at 1103 ft. Location is about five miles north of the company's Nicholas No. 1 discovery well. On Sec. 33-16s-12e, not far from the discovery, Texaco's Parish One No. 1 is making hole below 700 ft.

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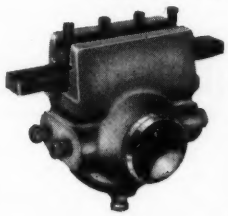
DANIEL introduces the SIMPLEX



0 to 1000 P.S.I.G.
Socket Weld for field installation
Welding neck for shop fabrication
Inexpensive removable wafer plate
Out modes conventional orifice flanges

DANIEL ORIFICE FITTING CO.
LOS ANGELES • TULSA • FORT WORTH • HOUSTON
Agents in Principal Cities

SEE THEM AT THE LONG BEACH EXPOSITION OCT. 22 & 23

Long Beach Royalties High

Long Beach Harbor garnered a surplus of $22,456,023 from oil royalties in the fiscal year 1947-1948, the Harbor Commission reported. This was the largest income from oil royalties since that source began in 1937 with a first year contribution of $438,490. By 1946-1947, the revenue had increased to $7,283,188. The year recently ended accounted for more than three times that figure, with the funds tied up pending outcome of the tidelands controversy.

Progress is the American Way of life. The petroleum industry IS progressive.

OPPORTUNITY

OIL TOOL MFGR. SUPPLY COMPANY or DISTRIBUTOR. A competent, capable, well seasoned oilfield sales executive desires to discuss the possibilities of active participation in your firm. Willing to invest where experience, ability and some capital can be utilized. Confidential negotiations. BOX Z, c/o Calif. Oil World. 9/5b

Comanche Point Test Completed

Tejon Hills Oil Co. has completed another shallow producer in the Tejon Hills sector at Comanche Point. The new producer is Tejon Hills No. 6 on Sec. 10-11n-18w, which was completed at 550 ft. for 20 barrels of 29 gravity oil daily, cutting one-tenth of one per cent.

RENFRO
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Los Angeles 21, Calif.
TRinity 4023
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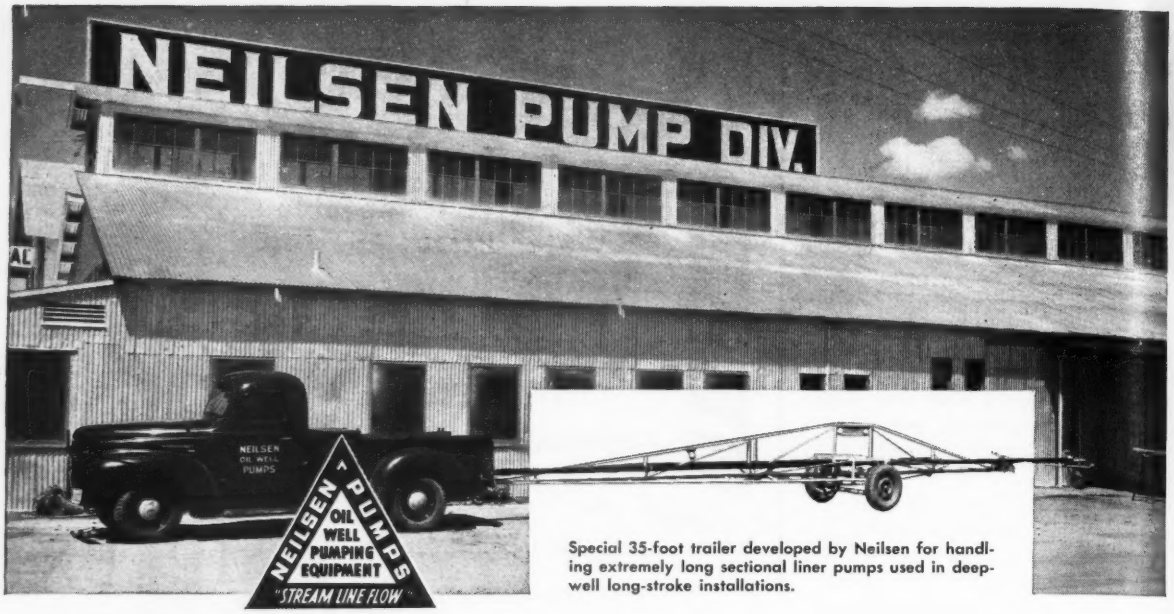

Special 35-foot trailer developed by Neilsen for handling extremely long sectional liner pumps used in deep-well long-stroke installations.

There is a NEILSEN pump for every oil field service

TO meet every existing pumping condition, Neilsen manufactures fifteen types of oil well pumps. Parts are so constructed that they are not only interchangeable in pumps of a given type, but can also be used in several different types of pumps to secure a wider selection of performance characteristics. This interchanging of parts between different pump types is accomplished without the sacrifice of efficiency in any respect.

NEILSEN ROD PUMPS—When classed as Rod Pumps, the entire working unit can be installed or removed with the sucker rod string. There are two types of Rod Pumps and both are held in place with a hold-down assembly. The "Traveling Barrel" type has a stationary plunger and standing valve with a traveling barrel and working valve. This type of pump (1) will handle more sand without sanding up, (2) more fluid where there is an unlimited volume, and (3) is very economical in first-cost and maintenance. In "Stationary Barrel" pumps, the working valve reciprocates with the plunger. This pump is (1) recommended for extremely long-stroke applications, is (2) highly efficient in very low-gravity oil, is (3) very effective in wells with low fluid levels, and is (4) a more satisfactory type of pump for use in crooked holes.

NEILSEN TUBING PUMPS—This type of pump differs from the Rod Pump, in that the barrel is run on the tubing and the plunger on the rods; providing maximum size pump bores for any given size tubing. When high capacity is a major consideration, this pump is recommended for pumping wells to a maximum depth of 4,500 feet, with conventional pumping units. However, much greater depths are being produced with this type of pump on the modern long-stroke units.

I-R METAL IN NEILSEN PUMPS—is one of the hardest, toughest, most abrasion-resistant metals used in the construction of any oil well pump. Its extreme hardness combined with low coefficient of friction is an important factor in the long service life and trouble-free performance for which all Neilsen I-R Metal Pumps are noted.

THE COMPLETE LINE OF NEILSEN PUMPS INCLUDES (1) rifle-honed I-R Metal sectional liner pumps, (2) heat-treated alloy iron sectional liner pumps, and (3) full barrel capacity pumps in all standard bores and lengths.

SPECIALIZED SERVICE—Complete and highly specialized pump service is provided in all California Oil Fields where trained Technicians are always available to assist production men in solving their pumping problems.

NEILSEN PUMP DIVISION
Oil Well Supply Company

ADMINISTRATIVE OFFICES and FACTORY
3204 Cherry Ave., Long Beach 7, California

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USS

NEILSEN PUMPING EQUIPMENT

WITH "STREAM LINE FLOW"

UNITED STATES STEEL

With Drilling Contractors

A drilling practice course is being sponsored by the American Association of Oilwell Drilling Contractors at the Long Beach Junior College. Applications should be filed with H. W. Ferguson, coordinator for trades and industries, 301 Olive street, Long Beach.

The course is open to high school graduates and veterans. Frank Jones, secretary of the California chapter of AAODC pointed out that the industry is always seeking highly specialized men.

Douglas H. Graham, veteran oil producer and contract driller, has been elected treasurer of the Children's Home Society of California. The society is the oldest adoption agency in the state and is the largest private adoption agency in the country. Graham, a partner in the firm of Dunlap & Graham at Long Beach, is a vice president of the AAODC California chapter. He is a member of the Rotary Club, Jonathan Club and Pacific Coast Club.

High demand for reservations at the AAODC's eighth annual meeting at Houston on October 11-12 points to a record attendance. The program is taking form. With drilling activity at a record level indications are the attendance of drilling contractors will show a big increase, the association reported.

The drilling industry is in the paradoxical position of having serious problems in the midst of a boom, according to the association. Many of the papers and talks at the meeting will center around these problems and it is believed that both contractors and the companies they work for will profit handsomely from these discussions.

Twenty-one members of the Severns Drilling family were on the company's second annual fishing trip off Balboa. The vessel known as the Dora B. left Hersh's Beacon Landing shortly after dawn and returned at nightfall.

A number of well known oil field tool and equipment companies donated prizes to be awarded drillers with the best catches. These companies included Mission Manufacturing, Abegg & Reinhold, Security Engineering, Fred Walker Mud Service, H. C. Smith Oil Tool Co., Antelope Material, Slatts Vac. Service and John M. Phillips Supply.

Severns Drilling, incidentally, has contract for a program of three drilling jobs for Tide Water Associated in the East Coyote field. They are Hualde No. 19, No. 20 and No. 22. The company also has contract for Union Oil's Dominguez Estate No. 2 in the Dominguez field. The rig was moved over from Alondra Park, where a total of 9200 ft. of hole was drilled in only 25 days. A National 100 did the job.

Contract has been let to Gene Reid Drilling Co. to drill Florence No. 21 for Blocks Oil Co. in the Inglewood field.

Rocky Mountain Drilling Co. has been assigned contract to drill for Standard of California its Frew No. 1-6 in the Aliso Canyon field.

Brown Drilling Co. has the contract to drill Larronde No. 8 for Union Oil at Dominguez.

Union Oil's Stearns No. 110 at Brea-Olinda will be drilled under contract with K. L. Kellogg & Sons.

"A Thought For Tomorrow" is the title of an interesting article by J. E. Brantly, president of Drilling & Exploration Co. in the current issue of Drilexco house organ.

"The primary concern of every man and his principal efforts in life are directed toward supplying the present needs for his family and himself," Brantly stated. "His second concern and efforts should be directed toward the establishment of a source of income that will provide for the requirements of his family and himself after he reaches that age when he wishes to, or must retire. There are many ways to do this, but the most of them are not open to those of us who are accustomed to dealing with matters of finance. We, therefore, must select a method with which we are familiar.

"First," the drilling executive suggests, "decide where you wish to spend your years of rest and retirement. That is frequently a very hard decision to make, but it is not too important for it can be changed later. The important point is to choose some thing to work on mentally and physically."

After having selected the final home area, county or state, Brantly recommends in the article the acquisition of a piece of property larger than a house lot, but not of a size calling for too much investment or to become burdensome.

"Gardens, fruit trees, chickens, maybe a cow or two, and such things should be in mind," he emphasized. "If a place with a house already on it can be found, that is fine, otherwise you should build a house, a home, and point towards its completion and completion of the project preferably a few years before your contemplated age of retirement. This plan should be put into effect at an early age and much sooner than you think you have the money to spare for such a venture."

American Association of Oilwell Drilling Contractors has formed its tenth district chapter. This was accomplished when Dallas and Fort Worth oil men held an organization meeting at the Baker Hotel in Dallas. Louis A. Beecherl was elected chairman, Thomas J. Carter, vice chairman, and R. V. Everidge, secretary. The next meeting will be held in Dallas.

Important News For Every Oil Man in the United States!

OCTOBER 14 proclaimed OIL PROGRESS DAY!

A day set aside on which your community's attention will be focused on YOU and YOUR BUSINESS!

Here's what this special occasion will mean to you...and what YOU can do to make the most of it!

On October 14, the people in your locality will turn their attention to *you!* For that's the date of Oil Progress Day—the day for you to report the progress you and your industry have made. People will look to YOU on that day—because you are the part of the oil industry best known to the people in your community.

This is your big opportunity to tell how your company is helping to meet the greatest demand in history. Your chance to tell the role your company plays in handling the tremendous amount of oil products being supplied America today. Yes, Oil Progress Day is a wonderful time to tell your neighbors how you serve the community.

You're The One Who Gains!

YOU gain when the public understands the competition in oil—the way you compete with rival firms to win customer approval. For once the public knows the great job you've been doing, they'll understand why your business freedom means MORE OIL FOR THEM! That's why this open house for the oil industry can be of so much benefit to *you!*

Get Ready For Your Big Day!

Right now free material to promote Oil Progress Day is being rushed to your local committee office. Tie in ads ... sample speeches ... booklets ... motion pictures ... employee meeting material ... poster designs ... radio material ... *everything* you need to make Oil Progress Day YOUR DAY!

Get in touch with your local committee office NOW! The address is listed below. Write TODAY so you'll be all set for Oil Progress Day!

OIL INDUSTRY INFORMATION COMMITTEE

District Offices:

ATLANTA	CINCINNATI	KANSAS CITY	NEW YORK
BOSTON	DALLAS	LOS ANGELES	PHILADELPHIA
CHICAGO	DENVER	MINNEAPOLIS	TULSA

Here's how you can benefit from Oil Progress Day in your community

Hold "open house" on October 14 and let people get acquainted with your business. That way, your neighbors will get a new understanding of the problems you face...an understanding that's *bound* to result in more friends for YOU! Tell them how great the need for oil is ... how *hard* you've worked to keep them supplied and still maintain your high standards of quality and service—and you create good will that pays off for *you* and *your firm* in the long run!

Get in touch with your district committee NOW!

They'll make it easy for you to make the most of Oil Progress Day. They'll give you material you can use to tie your business in with this big nation-wide report!

Don't miss this chance to stand out in your community! *Make Oil Progress Day Your Day!*

LAUGH THIS OFF!!

"You may call a woman a mouse but never a rat, a chicken, but never a hen, a duck, but never a goose, a vision but not a sight." Always keep your Thesaurus handy, men, when talking to a little chickadee!

We heard some patronizing pity about poor ad women who had to compete with males. Reminds of the story of the ancient caveman who was told "Get your club—saber toothtiger is chasing your missus." "What the hell do I care what happens to the tiger?" he answered, going on about his business.

A little fishing worm stuck his head up out of the damp ground and saw another worm close by, sticking up out of the ground. He said: "My, you're cute—I could go for you." Replied the other: "Don't be silly; I'm the other end of you."

Wifie: "I don't think you love me any more—you just sit there all evening reading the news."

Hubby: "Why, sweetheart, how can you say that? You know I love you more than ever. I worship you! Now please shut up and let me read the paper."

Speaker: "Is there any man in the house who would let his wife be slandered and say nothing? If so, please stand up."

A meek little man rose to his feet.

Speaker: "Do you mean that you would let your wife be slandered and not do anything about it?"

Little Man: "Oh, pardon me. I thought you said slaughtered."

Policeman: "Your honor, I caught this guy taking apples off a peddler's cart."

Judge: "Hmm! Ten days for impersonating an officer."

John: "Now my father has another wife to support."

Jim: "Bigamy?"

John: "No, I just got married."

"If I can hold off another twenty-minutes," I will have quit smoking a WHOLE HALF-HOUR! !"

Producer's helper for 29 years

Ever had a pumping unit problem? We have.

As a matter of fact we've been helping producers solve pumping unit problems for 29 years. All this experience has helped us make a unit that needs less care and maintenance, costs less to buy and operate and lasts a lot longer than can be reasonably expected.

Let this 29 years of field and manufacturing experience solve your problems. See your near-by Jensen dealer or write to Coffeyville. State your problem clearly. Our help will be based on practical, down-to-earth experience.

Stocked by
THE OIL TOOL CORPORATION
3075 Cherry Ave., Long Beach, Calif.
Phone 481-81

JENSEN BROTHERS MFG. CO.
COFFEYVILLE, KANSAS, U.S.A.
EXPORT OFFICE: 50 Church St., New York City

California Oil World's Monthly Summary

CALIFORNIA DEVELOPMENT AND PRODUCTION

	JULY, 1948, DEVELOPMENT				PRODUCTION	
	Active Drilling Wells	Oil Wells Completed	Initial Production B/D	Oil Wells Completed First 7 Months	Daily Average July 1948	Daily Average July 1947
SAN JOAQUIN VALLEY REGION						
Ant Hill	.....	.....	.....	.....	1,094	1,437
Antelope Hills	.....	.....	.....	.....	1,186	1,311
Bellevue	.....	.....	.....	.....	269	302
Belridge—North	1	1	34	1	3,610	6,158
Belridge—South	3	2	50	21	9,111	5,979
Blackwell's Corner	.....	.....	.....	.....	144	172
Buena Vista	1	1	17	7	45,584	47,154
Canal	.....	.....	.....	.....	1,902	2,009
Coalinga Group						
Eastside	4	8	573	34	18,514	15,476
Oil City	.....	.....	.....	.....	75	88
Coalinga—Nose	.....	.....	.....	.....	53,509	54,153
Coalinga—Northeast	.....	.....	.....	3	10,099	8,642
Pleasant Valley	2	.....	.....	.....	3,605	4,263
Jacalitos	1	1	475	11	6,027	4,677
Westside	2	4	181	25	7,098	6,609
Coles Levee—North	2	1	346	5	16,024	16,730
Coles Levee—South	.....	.....	.....	1	3,088	3,014
Cuyama Valley	5	4	2,689	6	1,666	.....
Edison	4	4	713	17	11,607	11,159
Elk Hills	4	.....	.....	2	5,244	5,747
Fruitvale	.....	1	121	3	6,340	6,352
Greeley	.....	.....	.....	.....	13,859	9,961
Helm	.....	.....	.....	.....	3,330	3,995
Kern Bluff	4	5	480	24	1,257	.....
Kern Front	2	6	124	35	9,131	9,080
Kern River	8	20	538	171	12,864	10,069
Kettleman North Dome	3	.....	.....	7	34,729	36,201
Lanare	.....	.....	.....	.....	1,259	1,773
Lost Hills	4	9	706	54	8,022	5,282
McKittrick Group						
Belgian Anticline	2	.....	.....	1	1,064	221
Cymric	2	2	90	49	15,377	17,504
McKittrick	.....	1	67	3	2,794	2,832
McKittrick Front	.....	.....	.....	3	2,240	1,587
Salt Creek	.....	.....	.....	.....	6,076	7,405
Sheep Springs	.....	.....	.....	.....	731	554
Temblor Ranch	.....	.....	.....	.....	98	134
Midway-Sunset	1	8	207	68	42,222	43,625
Mt. Poso Group	.....	2	69	14	12,875	13,993
Mountain View	3	1	117	6	3,509	5,346
Paloma	5	1	208	20	11,719	8,604
Poso Creek Group	1	1	8	8	3,708	3,655
Pyramid Hills	.....	.....	.....	.....	231	253
Race Track Hill	.....	.....	.....	3	1,944	2,205
Raisin City	1	.....	.....	5	3,296	2,640
Rio Bravo	.....	.....	.....	.....	12,067	12,684
Riverdale	1	.....	.....	.....	3,142	4,222
Round Mountain Group	1	.....	.....	11	7,505	8,523
Strand	.....	.....	.....	.....	511	1,089
Strand—East	.....	.....	.....	.....	481	580
Tejon Ranch	.....	.....	.....	4	3,008	3,529
Ten Section	1	.....	.....	2	6,875	8,112
Union Avenue	.....	.....	.....	.....	284	253
Wasco	.....	.....	.....	.....	131	236
Wheeler Ridge	2	2	121	6	428	205
Other Fields	6	5	129	27	1,223	783
TOTAL—San Joaquin Valley Region	76	90	8,063	657	433,786	428,572
COASTAL REGION						
Santa Maria District						
Barham Ranch (Los Alamos)	.....	.....	.....	.....	10	.....
Casmalia	1	1	160	6	1,002	839
Cat Canyon—East	.....	.....	.....	.....	450	567
Cat Canyon—West	5	4	565	28	15,991	12,238
Four Deer	.....	1	200	4	648	187
Gato Ridge	.....	.....	.....	1	3,681	3,531

	JULY, 1948, DEVELOPMENT				PRODUCTION	
	Active Drilling Wells	Oil Wells Completed	Initial Production B/D	Oil Wells Completed First 7 Months	Daily Average July 1948	Daily Average July 1947
COASTAL REGION—Continued						
Guadalupe	.....	.....	.....	1	33	.....
Lompoc	1	1	66	18	6,714	5,858
Olivera Canyon	3	1	448	1	807	.....
Orcutt	2	.....	.....	11	4,622	4,590
Santa Maria Valley	.....	3	261	13	20,288	25,636
Tinaquaic	.....	.....	.....	.....	.....	7
Zaca Creek	1	1	550	6	2,037	413
Santa Barbara District						
Capitan	2	.....	.....	.....	2,415	2,848
Elwood	1	1	264	4	7,374	7,168
Santa Barbara	.....	.....	.....	.....	78	92
Summerland	.....	.....	.....	.....	3	2
Ventura District						
Montalvo West	2	.....	.....	2	588	136
Padre Canyon	2	1	128	8	6,288	2,996
Rincon	1	.....	.....	1	3,170	3,540
San Miguelito	3	1	141	3	4,967	5,219
Ventura Avenue	11	4	1,859	17	52,079	47,739
North Santa Clara District						
Del Valle	6	1	65	11	9,594	8,393
Hopper Canyon	.....	.....	.....	.....	173	205
Oak Canyon	.....	.....	.....	1	1,983	1,590
Sespe Canyon Group	.....	.....	.....	1	215	195
Temescal	.....	.....	.....	1	574	588
Others	.....	.....	.....	5	760	260
South Santa Clara Valley District						
Aliso Canyon	1	1	901	6	3,686	3,334
Bardsdale	.....	3	359	12	840	418
Newhall-Potrero	5	2	723	7	7,625	6,557
Oxnard	1	.....	.....	.....	1,247	1,561
Shiells Canyon	.....	2	49	3	885	1,119
South Mountain	2	4	724	16	6,017	5,334
West Mountain	1	.....	.....	5	1,054	633
Others	4	4	86	14	1,040	949
Miscellaneous	5	4	340	8	169	116
TOTAL—Coastal Region	60	40	7,889	214	169,134	154,858
LOS ANGELES REGION						
Brea-Olinda	4	4	445	19	15,763	11,917
Coyote—East	1	.....	.....	4	4,854	4,959
Coyote—West	4	4	194	21	15,238	14,781
Dominguez	1	2	518	4	13,770	14,963
East Los Angeles	.....	.....	.....	1	1,203	1,249
El Segundo	.....	.....	.....	.....	364	399
Huntington Beach	11	13	1,777	139	57,723	49,623
Inglewood	3	4	719	17	12,602	11,972
Long Beach	3	.....	.....	8	23,085	23,948
Montebello	.....	.....	.....	.....	6,640	7,293
Newport	2	4	1,256	32	6,947	6,937
Playa Del Rey	.....	.....	.....	.....	1,946	2,088
Potrero	2	.....	.....	3	1,279	747
Richfield	1	.....	.....	3	6,271	6,631
Rosecrans-Athens Group	5	2	143	6	4,602	4,567
Santa Fe Springs	.....	.....	.....	6	14,887	16,481
Seal Beach	2	1	103	10	12,024	10,917
Torrance	1	2	61	6	7,756	8,082
Whittier	.....	.....	.....	.....	947	989
Wilmington	11	12	3,327	114	132,471	134,276
Yorba Linda	.....	.....	.....	2	985	200
Others	4	3	803	10	2,493	1,642
TOTAL—Los Angeles Region	55	51	9,346	407	343,850	334,661
EXPLORATORY						
Outpost Wells	44	.....	.....	.....	.....	.....
Wildcats	13	.....	.....	.....	.....	.....
Gas Wells	2	4	Gas	20	.....	.....
TOTAL CALIFORNIA	250	185	25,298	1542*	946,770	918,091

*Includes 244 drilling wells abandoned.

Graham and Nelson Return From World Trip

D. H. (Doug) Graham of Dunlap & Graham, Inc., drilling contractors, and Freddie Nelson, the company's superintendent, have just recently returned from a flying trip around the world.

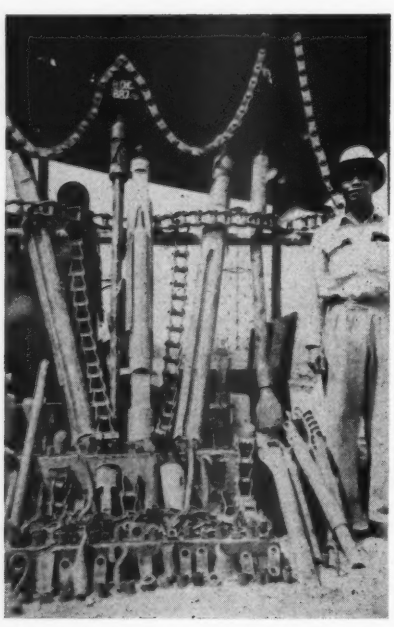
Leaving here on August First, via Pan American Air Lines, they touched Honolulu, Midway Island, Wake Island, Guam, Manila and Hong Kong.

After 24 hours in Hong Kong they continued on to Bangok where they spent several days and then proceeded on to Rangoon and to the oil fields of Upper Burma. On their return from the oil fields, they went on via Pan American to Calcutta, Delhi, Karachi, Damascus and Istanbul. From there they flew across Athens, the Italian boot, Naples, Rome and the Alps, having dinner in Brussels, and on to London the same night. After 4 days in London, they flew home by way of Shannon Ireland, Newfoundland, New York, Pittsburgh and St. Louis.

The entire trip with stop overs consumed only thirty-five days. According to Doug it was a wonderful experience and "the purpose of our trip was to act in an advisory capacity to the Burmese government in the purchasing by them of suitable and adequate drilling equipment for the drilling of wells in the Burma oil fields by the Burmese Government, who have nationalized all natural resources since gaining their independence from England. Present operations there are limited to cleaning out wells that were first destroyed by the Allies under military orders and then again by the Japs. Approximately 150 wells have been reconditioned at this time and there are some five thousand wells yet to be put into operation. Production so far is less than 1000 bbls. per day, and all of it is going into storage as the refinery at Rangoon will not be in operation until the latter part of 1950. The drilling program is expected to start at that time."

Among the Americans who welcomed Doug and Freddie and were most generous in their hospitality were: Sam Davis from Pennsylvania, who is assistant drilling supt. for Burma Oil Co.; Bill Darden from Houston, Ken Firestone and Ed Kelly from Long Beach, who are also working for Burma Oil and Joe R. Grove and his wife Nancy. Grove is with Naphsing Oil Co. at Yenanyaung, Burma.

"While in Burma, we were the guests of U Mya, chairman of the state oil industry board and his associate officers whose many courtesies and hospitality were beyond comparison. They all realize that, being a new government, they have many difficulties to overcome, but believe that with hard work they will gradually build a background of efficient government operations of their natural resources—of which oil will play an important part."



The photographs above were brought home by Doug Graham. They show the tubing from one well and the junk from another well. "Doug" says that this is characteristic of most all wells in the Burma oil fields.

Lane-Wells Salutes the A.P.I. With Striking Billboard

During October and early November, highway travelers in and near the nation's oil fields will see this striking billboard, posted by Lane-Wells to call attention to the tremendous work of the American Petroleum Institute and to lend further emphasis to the Institute's theme, "Petroleum Promotes Progress." The design is carried out

in 4 shades of blue, with tan, pale yellow, red and white. Posted at carefully chosen locations in ten states—Texas, California, Oklahoma, Arkansas, Kansas, Louisiana, Mississippi, Wyoming, New Mexico and Illinois—the poster will be seen not only by oil field men, but by tens of thousands of other automobilists. This is the sixth design in a series to be posted this year by Lane-Wells, who are believed to be the first oil field service company to employ a consistent schedule of outdoor posters to carry messages to oil country men.

Brookline Oil Reports Profit

Brookline Oil has reported a net profit of $48,661 for the 12 months ended June 30. This is equivalent to earnings of 14½ cents per share on the company stock.

"The substantial increase in the company's earnings during the 12 months period is due to increased production and higher crude oil and gas prices," John H. Laughlan, chairman of the board, said.

"To date, because of new wells, which are now on production, the financial condition of the company is excellent and the outlook the best in our history," according to the oil executive. "Eight wells are now on production and drilling of seven additional wells is now in the preliminary state."